

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

UNICORN ENERGY GMBH,)	
)	
Plaintiff,)	
)	
v.)	Civil No. 2:20-cv-00338-JRG
)	
TESLA, INC.,)	
)	
Defendant.)	

DECLARATION OF MARK EHSANI, PH.D., REGARDING CLAIM CONSTRUCTION

I, Mark Ehsani, Ph.D., declare as follows:

INTRODUCTION AND QUALIFICATIONS

1. I am being compensated for my work in this matter at my standard rate of \$500/hr. My compensation does not depend on the outcome of this case or on the content of my analysis or testimony. I do not currently hold any financial interest in either Tesla, Inc. (“Tesla”) or Unicorn Energy GmbH (“Unicorn”).

2. I have been asked by Tesla to provide my opinion regarding how a person of ordinary skill in the art would have interpreted certain disputed claim terms in the asserted patent in this case (U.S. Patent No. 10,008,869 (“’869 patent”)). I reserve the right to supplement this declaration to rebut any opinion, statement, evidence, or position taken by Unicorn or any expert who submits a declaration in support of Unicorn’s proposed claim constructions.

3. In forming the opinions expressed in this declaration, I have considered and relied upon my education, background, and experience. In addition, I have reviewed and relied upon the following materials:

- the ’869 patent and its prosecution history;

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- the claim terms, the proposed constructions of Tesla and Unicorn, and the evidence cited in the parties' Patent Local Rule 4-2 disclosures;
- any other evidence cited or discussed in this declaration.

4. My experience and education are detailed in my curriculum vitae ("CV"), a copy of which is provided as Exhibit A to this declaration. My CV also lists publications on which I am a named author and identifies parties on behalf of whom I have previously provided expert testimony.

5. I am a professor of electrical engineering at Texas A&M University, in College Station, Texas. I have experience in a number of areas and have particular expertise in electronics; power systems, high voltage engineering, ac and dc circuit breakers, vacuum interrupters, make and break devices, electrical grounding systems, ac power system faults and system protection, wind and other renewable power systems, electrical control systems and circuits, power electronics and electronic systems; and their related technologies. This expertise is directly applicable to the technical area of the '869 patent, which relates to power systems and electrical control systems.

6. I received my Bachelors and Masters degrees, in electrical engineering, from the University of Texas at Austin in 1973 and 1974, respectively. After a few years of professional work and research I received my Ph.D. in electrical engineering from University of Wisconsin-Madison, in 1981.

7. I hold several academic professorships at Texas A&M University, including the Robert M. Kennedy Endowed Professorship of Electrical Engineering.

8. I founded one of the first university power electronics and sustainable energy systems teaching and research programs in the United States, which is considered to be in the top three in the U.S. and one of the best in the world. For this I received many awards and recognitions,

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such as the Institute of Electrical and Electronics Engineers (IEEE) Outstanding Teaching Award in 2003, which is the top academic award in this field.

9. I have organized two undergraduate and five graduate courses in power electronics and sustainable power systems at Texas A&M University. Many of these courses have been on the topic of power converters, wind and solar power generation, their controls and applications for various systems such as isolated loads, microgrids, and the power grid. I have also conducted research and supervised over 90 Ph.D. and M.S. theses on these topics.

10. I was one of the founders of the Institute of Electrical and Electronics Engineers, IEEE, Power Electronics Society in the early 1980's and served on its founding Administrative Council and chaired its committees for many years. This professional society is the main forum for power electronics and motor drives specialists and organizes several annual conferences and has a journal for publication of state of the art papers in power electronics and motor drives. I have chaired many of these international conferences and have been a reviewer for the publications of this society for over three decades.

11. I have also served in positions of leadership related to power systems, power electronics, and their applications in other professional societies, including IEEE Power and Energy Systems, Industry Application Society, IEEE Industrial Electronics Society, IEEE Vehicular Technology Society, and Society of Automotive Engineers (SAE). I have received numerous honors and awards from these societies for my contributions to ac and dc power systems and power electronics. I have been elected Life Fellow of both IEEE and Fellow of SAE, which is the highest ranking given to a fraction of one percent of the membership of these professional societies.

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12. I have been a consulting engineer to over 60 companies in the U.S. and internationally, in power systems, power electronics and their applications, over the past forty years. I have also given numerous power electronics and systems short courses and seminars in the U.S. and all over the world for continuing education of power electronics and motor drive engineers in companies and government agencies.

13. I am the author or co-author of over four hundred published papers, twenty books, and over twenty-four patents in circuit interrupters, power electronics, renewable power systems, and their applications. A list of publications that I have authored over the last forty years is included in my CV, which is attached as Exhibit A.

14. The following is a sample of my publications in the field:

- M. Ehsani, “Power Stage and Control Algorithm Design for Balance of Plant Operation in Fuel Cell-Battery Off-Line UPS System,” patent disclosure to University Office of Technology Licensing.
- S. Moore and M. Ehsani, “An Empirically Based Electrosorce Horizon Lead-Acid Battery Model,” SAE Journal SP-1156, No. 960448, February 1996.
- Y. Gao, K. Rahman, and M. Ehsani, “The Energy Flow Management and Battery Energy Capacity Determination of the Drive train of the Electrically Peaking Hybrid Vehicle,” SAE Journal Publication, No. SP 1284, No. 972647, August 1997, pp. 43-48.
- Le Xe, M. Ehsani, et.al., “Fast MPC-Based Coordination of Wind Power and Battery Energy Storage System,” accepted for publication in IEEE Trans. on Industrial Electronics.
- M. Ehsani, et. al., “PHEV Energy Management Strategies at Cold Temperatures with Battery Temperature Rise and Engine Efficiency Improvement Considerations” SAE International Journal of Engines, June 2011.

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- Neeraj Shidore, Erik Rasc, Ram Vijayagopal, Forrest Jehlik, Jason Kwon, Mehrdad Ehsani, “PHEV Energy Management Strategies at Cold Temperatures with Battery Temperature Rise and Engine Efficiency Improvement Considerations,” SAE International Journal of Engines, ISSN 1946-3936, February 2012, SAE Paper #2011-01-0872.
- Le Xie; Yingzhong Gu; Ali Eskandari; Mehrdad Ehsani, “Fast MPC-based Coordination of Wind Power and Battery Energy Storage Systems,” accepted for publication in ASCE’s Journal of Energy Engineering, 2012.
- S. Moore and M. Ehsani, “An Empirically Based Electrosorce Horizon Lead-Acid Battery Model,” Society of Automotive Engineers International Congress Conference (SAE ’96), Detroit, MI, February 1996.
- Y. Gao, K. M. Rahman, M. Ehsani, “The Energy Flow Management and Battery Energy Capacity Determination for the Drive Train of Electrically Peaking Hybrid Vehicle,” SAE Future Transportation Technology Conference and Exposition’97, San Diego, CA, August 1997.
- Y. Gao and M. Ehsani, “Investigation of Battery Technologies for the Army’s Hybrid Vehicle Application,” IEEE Vehicular Technology Conference, Vancouver, B.C., September 2002.
- Yimin Gao, M. Ehsani, “Investigation of Battery Technologies for the Army’s Hybrid Vehicle Application,” VPPC 10, Lille, France, September 2010.
- M. Ehsani, et. al., “PHEV Energy Management Strategies at Cold Temperatures with Battery Temperature Rise and Engine Efficiency Improvement Considerations,” 2011 SAE International World Congress technical paper, 2011-01-0872, Feb. 2011, Detroit, MI.

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15. Therefore, based on my education, professional experience of forty years, and scholarly books and publications, I am an expert in the relevant field of the '869 patent at issue here and have been an expert in this field since before the '869 patent's earliest potential priority date, which I have been informed is March 2, 2012. I am intimately familiar with how a person having ordinary skill in the art would have understood and used the terminology found in the '869 patent at the time of its filing and as of March 2, 2012.

APPLICABLE LEGAL PRINCIPLES

16. I am neither a lawyer nor a legal expert and am not offering any opinions or testimony about the law. Nevertheless, I have been asked to provide my opinions in the context of certain legal standards that I have set forth below. I have used these legal standards as background for my work and to assist in forming my opinions regarding claim construction. I am informed that claim construction is a question of law for the Court to decide, with potential underlying issues of fact. The purpose of claim construction is to determine the meaning and scope of the asserted claims.

17. I understand that a disputed claim term should be read not only in the context of the specific claim in which it appears, but also in the context of the entire patent-in-suit, including the specification. I am informed that the specification has been referred to as the "single best guide to the meaning of a disputed term." For terms without customary meaning in the art, the specification typically supplies the best context for understanding claim meaning.

18. I understand that the prosecution history can further inform the meaning of the claim language by demonstrating how the inventors understood the invention and whether the inventors limited the invention in the course of prosecution, making the claim scope narrower than

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it otherwise would be. The Court may also consult extrinsic evidence, such as this declaration, in construing the claim terms.

19. I understand that claim construction must be done from the perspective of a person of ordinary skill in the art (“POSA”) at the time of filing. I also understand that in determining who would have been a person of ordinary skill in the art, it is proper for me to consider the type of problems encountered in the art, prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the education level of active workers in the field. I have provided my opinion below as to who I would consider to have been one of ordinary skill in the technological art of the ’869 patent.

20. I further understand that certain patent claims can “be expressed as a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof” and that such claims are construed by the Court to cover the corresponding structure, material, or acts described in the specification and equivalents thereof. I understand that, when construing such claims, the Court first identifies the claimed function and then determines what structure, if any, disclosed in the specification corresponds to the claimed function. I understand that the claims are then interpreted to be limited as covering only those functions and structures. I also understand that structure disclosed in the specification is “corresponding” structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. I understand that the standard for determining whether a claim should be construed in such a manner hinges on “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” I further understand that, if a claim term is expressed as a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof, a failure to disclose at least

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one embodiment of corresponding structure in the written description will render the claim invalid as indefinite.

21. I also understand that, regardless of whether a particular claim term is expressed as a “means or step for performing a specified function without the recital of the structure, material, or acts in support thereof,” a claim term that has no accepted meaning in the art ordinarily cannot be construed broader than the disclosure in the specification.

22. Finally, I understand that a patent claim is invalid as indefinite if the claim, as read in light of the specification delineating the patent, and the prosecution history, fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention. I have been informed that a claim term does not become reasonably certain simply because a skilled artisan, when pressed, might manage to articulate a definition for it. I understand that showing that a skilled artisan cannot recognize the scope of a claim term with reasonable certainty requires showing considerably less uncertainty than showing that a skilled artisan could not understand the claim term at all.

PERSON OF ORDINARY SKILL IN THE ART

23. As noted above, I understand that the claims of the '869 patent must be interpreted from the perspective of what would have been known or understood by a POSA as of the earliest claimed priority date of the claim, which I have assumed is March 2, 2012.

24. The relevant technical field for the '869 patent is electronic control systems for batteries, and in particular, networked battery modules. Based on this, and the factors above, in my opinion a POSA on March 2, 2012 would have had a Bachelor of Science in electrical engineering (or equivalent degree) with at least two years of experience related to research, evaluation, design, development, testing, etc. of electronic control systems for batteries. This

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definition is approximate, and more experience may substitute for education or vice versa. My opinions regarding the level of ordinary skill in the art are based on, among other things, my over forty years of experience in the relevant field, my understanding of the basic qualifications that would be relevant to an individual tasked with implementing electronic control systems for batteries, and my familiarity with the backgrounds of researchers and practitioners in the related areas, including colleagues, students, and other individuals, both past and present, who work in these areas.

25. My opinions herein regarding the understanding of a person of ordinary skill in the art and my other opinions set forth herein would remain the same if the person of ordinary skill in the art were determined to have somewhat more or less education and/or experience than I have identified above. Although my knowledge and skill exceed that of a person of ordinary skill in the art, my opinions herein reflect and are made from the understanding that a POSA would have had as of March 2, 2012.

'869 PATENT AND TECHNOLOGY BACKGROUND

26. The '869 patent claims “energy storing components” “for a supply network” that comprise “at least one contact unit for contacting a further energy storing component of the supply network,” wherein the contact unit comprises “a communication interface for communicating with a further energy storing component” and a “transport interface for transporting” “electrical energy to the further energy storing component”; “an energy store”; “at least one gateway for coupling the at least one contact unit with the energy store”; and “at least one switch for separating the energy store from the network medium.” ('869 patent at claims 1, 27.) The claimed energy storing components must be “configured to cooperate with the communication interface such that the energy storing component is separated from the network medium in response to an autonomous

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identification of incompatibility of the energy storing component with the present supply network.” (*Id.*)

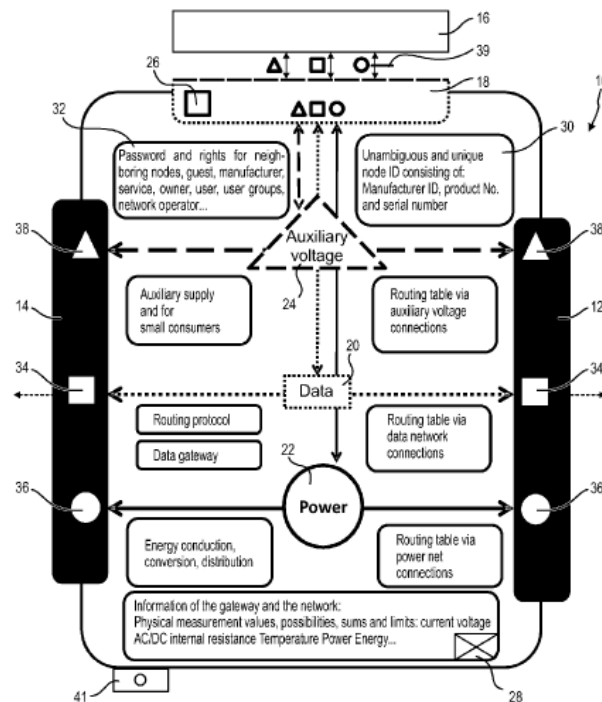


Fig. 1

27. The '869 patent describes embodiments of contact units that physically touch contact units of adjacent components. For example, the patent describes “supply network components” that are “similar to the standardized alkaline batteries” in that they may have a “pluggable standard form.” ('869 patent at 5:53-59.) One embodiment is shown in block-diagram format in Figures 1, 10a, and 10b, which show contact units as black boxes containing communication, transport, and auxiliary voltage interfaces (see items 12 and 14 in Figure 1, above).

28. Figures 2, 3, 4, 7, and 8 depict contact units that are placed at opposite ends of a cylindrical “supply network component,” reminiscent of standard, cylindrical alkaline batteries (see items 12 and 14 in Figure 4, below). (*See id.* at 11:6-15 (“A contact unit is provided which enables rapid coupling and separation of individual housings among one another. In the example,

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the cylindrical form was chosen, which in terms of design is also intended to be reminiscent of the symbolism of existing battery standards. In a manner similar to a cylindrical alkaline battery, contact is made by two contact units at two cylinder ends, the base surface and the top surface of the cylinder. These two contact blocks can be pressed against one another magnetically or mechanically for secure plug-in.”.)

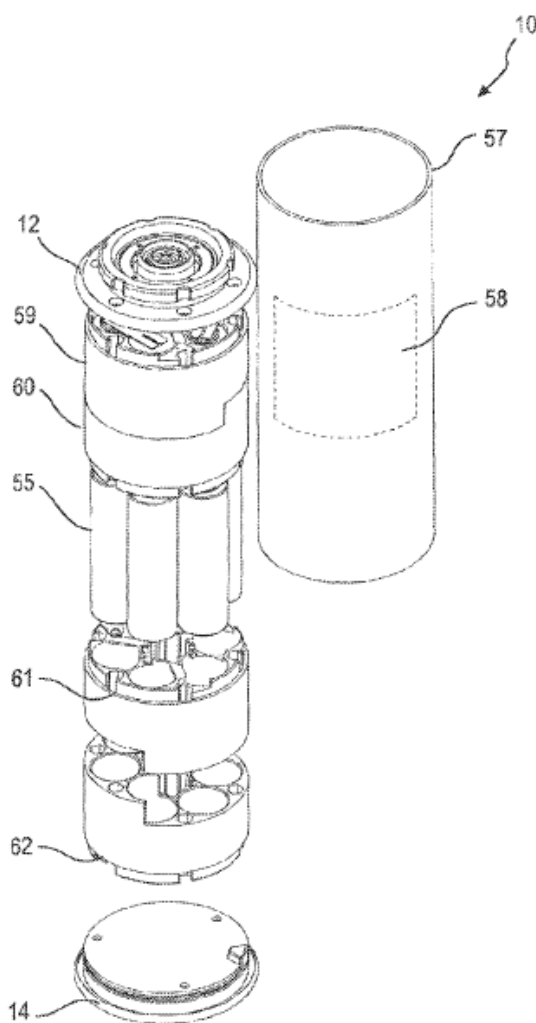


Fig. 4

29. The '869 patent distinguishes its claimed inventions from battery management systems that include centralized controllers for controlling individual battery cells. For example, the '869 patent describes “individual energy stores” that “are permitted to be distributed, and can

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be distributed, arbitrarily in the application and form a shared intelligent electricity network.” (’869 patent at 6:2-5; *see also id.* at 5:17-29 (“In this way, it becomes possible to provide, as supply network component, a mobile, stackable, secure and intelligent standard energy store as a component of an intelligent electricity network or energy mesh in which the energy consumers, the energy sources and the energy stores as supply network components according to the invention can communicate via suitable interfaces and protocols and the current flow and data flow between the supply network components can be routed unambiguously.”).) The patent explains that each individual supply network component can contain a “controlling device” that can “function as an energy manager and implement specific charging and discharging strategies” and a “DC/DC converter” that “allows an exact energy distribution, regulation and limitation of each individual supply network component,” obviating the need for a centralized controller. (*Id.* at 7:1-5; 8:6-16.)

30. Consistent with the description of its supply network components being part of a distributed network, rather than a centrally-controlled network, the patent explains that “[e]ach supply network component can . . . autonomously interrupt the current flow” to other components “through at least one switch.” (*Id.* at 8:52-54; *see also id.* at 8:61-64 (“Each supply network component can thus take responsibility for safe connection to the supply network by means of the communication interface and by monitoring compatibility with the supply network present.”).)

31. Claim 27 of the ’869 patent recites an “energy storage block” comprising multiple energy storing components, and recites many of the same limitations as claim 1. The patent’s dependent claims recite a “controlling device for controlling the energy store” (claim 2), an “auxiliary voltage interface” that may form part of the “contact unit” and is used to supply electrical energy to the contact unit or the gateway (claim 3), the use of a “sensor” to measure a “physical parameter” (claims 9 and 10), “separat[ing] the energy store from the network medium

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in the event of a failure of the communication interface” (claim 24), and an energy storage block that is switched on in response to an autonomous identification of compatibility with the network (claim 28).

32. As part of my review of Unicorn’s opening claim construction brief and Mr. Dillard’s declaration filed in support thereof, I have considered whether the statements on pages 1-4 that purport to be an “overview of technology and the asserted patent” are true. In my opinion, many of these statements are false. For example, I disagree with Unicorn’s statement that the ’869 patent’s energy storing components were primarily intended for use in an electrical “grid.” The ’869 patent does not even mention the word “grid,” and the ’869’s energy storing components are described as being designed for “mobile,” “consumer” applications that have nothing to do with a grid. *See, e.g.*, ’869 patent at 4:39-42. Although the patent briefly mentions applications “to provide energy stores having large capacities of more than one megawatt-hour” in connection with Figure 11, there are no details provided regarding such an implementation, and I do not believe a POSA would have understood the inventors to have intended the ESCs to be used for such an application. *See id.* at 18:64-19:14. Rather, the specification makes clear that the ESCs were intended for small-scale applications, such as charging mobile devices, powering electric bicycles, etc. A POSA would understand that attempting to use the ESCs described in, for example, Figures 2-8 for large-scale, grid-connected applications would raise issues of cost, reliability, and efficiency that would result in them not being used for such applications.

33. I also disagree with Unicorn’s statement that: “The ESCs described and claimed in the ’869 patent use groups of battery cells (sometimes referred to in the specification as “functional groups” or, depending on the number, a “functional unit”) to store and release energy.” Open. Br.

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at 1. The '869 patent's claims do not mention the use of multiple "battery cells" and, as I explained below, claim 9's use of the phrase "functional group" is indefinite.

34. Unicorn's statements about the prior art are incorrect. For example, Unicorn states: "Prior art battery management systems at the time of the invention could detect when internal operating limits of the battery pack were exceeded (e.g., over-current, over-temperature) but were ignorant of the external network to which the battery packs were connected." Open. Br. at 2. This is inaccurate. For example, U.S. patent application publication no. 2014/0368032 to Robinson, et al. ("Robinson") discloses the detection of "operating voltage and other power parameters" of external "power devices" connected to a "power manager." Robinson ¶¶ 57, 133, 134. I also disagree with Unicorn's statement that "[t]hey could not assess whether the packs were compatible with the external network nor could they determine to adjust their operation, *on their own*, based on consideration of conditions of the external network." Open. Br. at 2. As discussed in the foregoing cited paragraphs of Robinson, Robinson could perform this functionality.

35. I also disagree with Unicorn's statement that the '869 "solved" a "problem" in the art. Open. Br. at 2-3. The '869 patent does not disclose any solution that did not already exist in the art. For example, I do not agree with Unicorn's assertion that the '869 solved any problems related to "safety, flexibility, and scalability" of energy storage systems.

36. I also disagree with Unicorn's statement that "each ESC can monitor its own compatibility—in terms of physical parameters such as voltage, current, or temperature and compliance with safe operating parameters—with the supply network to which it is connected." Open. Br. at 4. This functionality is not recited in the claims and is not required to practice the claimed inventions.

CLAIM CONSTRUCTION

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37. I have been informed by counsel that Unicorn is asserting claims 1-3, 5, 7, 9, 10, 19, 24, 27, and 28 of the '869 patent. Of those claims, claims 1 and 27 are independent claims.

38. Claim 1 recites:

1. An energy storing component for a supply network for electrical energy as a network medium, comprising:

at least one contact unit for contacting a further energy storing component of the supply network;

an energy store comprising at least one battery cell, and

at least one gateway for coupling the at least one contact unit with the energy store,

wherein the at least one contact unit has a communication interface for communicating with a further energy storing component of the supply network and a transport interface for transporting the electrical energy to the further energy storing component;

wherein the energy storing component comprises at least one switch for separating the energy store from the network medium, the energy storing component being configured to cooperate with the communication interface such that the energy storing component is separated from the network medium in response to an autonomous identification of incompatibility of the energy storing component with the present supply network.

39. Claim 2 recites:

2. The energy storing component as claimed in claim 1, wherein the gateway has a controlling device for controlling the energy store.

40. Claim 3 recites:

3. The energy storing component as claimed in claim 1, wherein the at least one contact unit furthermore has an auxiliary voltage interface for transmitting an auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy.

41. Claim 5 recites:

5. The energy storing component as claimed in claim 1, wherein the transport interface transmits the electrical energy in the form of a direct current.

42. Claim 7 recites:

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7. The energy storing component as claimed in claim 1, wherein the energy store has at least one direct current converter.

43. Claim 9 recites:

9. The energy storing component as claimed in claim 1, wherein the energy storing component comprises at least one sensor for detecting a physical parameter of the functional group.

44. Claim 10 recites:

10. The energy storing component as claimed in claim 9, wherein the parameter is a voltage, a current or a temperature of the at least one energy store.

45. Claim 19 recites:

19. The energy storing component as claimed in claim 1, wherein the energy storing component comprises an at least partly rewritable memory.

46. Claim 24 recites:

24. The energy storing component as claimed in claim 2, wherein the controlling device is designed in such a way that it separates the energy store from the network medium in the event of a failure of the communication interface.

47. Claim 27 recites:

27. An energy storage block for a supply network for electrical energy as a network medium, wherein the energy storage block comprises:

a plurality of energy storing components for a supply network for electrical energy as a network medium, each supply network component comprising:

at least one contact unit for contacting a further energy storing component of the supply network,

an energy store comprising at least one battery cell, and

at least one gateway for coupling the at least one contact unit with the energy store,

wherein the at least one contact unit has a communication interface for communicating with a further energy storing component of the supply network and a transport interface for transporting the electrical energy to the further energy storing component, wherein the plurality of supply network components are connected in parallel or in series with one another;

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wherein each of the energy storing components comprises at least one switch for separating its respective energy store from the network medium, each of the energy storing components being configured to cooperate with the communication interface such that the respective energy storing component is separated from the network medium in response to an autonomous identification of incompatibility of the respective energy storing component with the present supply network.

48. Claim 28 recites:

28. The energy storing block as claimed in claim 27, wherein each of the energy storing components are configured to cooperate with the communication interface such that the respective energy storing component is switched on in response to an autonomous identification of compatibility of the respective energy storing component with the present supply network.

A. “contacting a further energy storing component”

49. Each of the asserted claims requires “at least one contact unit for **contacting a further energy storing component** of the supply network.”¹ I understand that Tesla has proposed that the term “contacting a further energy storing component” should be construed as “physically touching a further energy storing component to establish an electrical junction.” *See* Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 1). This proposed construction accurately captures what a person of ordinary skill in the art would have understood this term/phrase to mean in view of the claim language, specification, prosecution history, and commonly accepted definitions of the word “contact” found in dictionaries available during the relevant time period.

50. The word “contacting” appears only once in the detailed description of embodiments in the specification:

FIG. 7 shows a detailed view of the first contact unit 12. Identical elements are once again identified by identical reference signs and will not be explained again. The first contact unit 12 is designed as a “socket”. Accordingly, it has a mating contact 70, which forms the auxiliary voltage interface 38 in the first contact unit 12. Said contact can serve for **contacting** a contact unit designed as a “plug”, such as the second contact unit 14, for example.

¹ All emphasis is added, unless otherwise noted.

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(’869 patent at 17:36-43.) Thus, the only meaningful use of the word “contacting” in the patent’s specification makes it clear that “contacting” involves physical touching, because the word “contacting” only appears in connection with the “plug” and “socket” embodiment shown in Figure 7, which requires physical touching of contact units. This use of “contacting” as physically touching is also consistent with the specification’s use of the word “contact,” which notes: “In a manner similar to a cylindrical alkaline battery, contact is made by two contact units at two cylinder ends, the base surface and the top surface of the cylinder. These two contact blocks can be pressed against one another magnetically or mechanically for secure plug-in.” (’869 patent at 11:10-15; *see also* ’869 patent at 11:20-21 (“individual contact units being simply plugged together”).) The patent’s contact units must necessarily be located on the exterior surface of an energy storing component to permit the energy storing component to “contact” (i.e., physically touch) a further energy storing component.

51. A person of ordinary skill in the art would have understood the term “contacting,” as used in the ’869 patent, to refer to its plain and ordinary meaning in the art, which is to physically touch in order to establish an electrical junction. This construction is reflected in the dictionary definitions cited by Tesla. *See* Merriam-Webster Online Dictionary, definition of “contact,” <https://www.merriam-webster.com/dictionary/contact> (last visited 5/10/2021) (Ex. C) (“union or junction of surfaces . . . the junction of two electrical conductors through which a current passes”); Dictionary.com, definition of “contact,” <https://www.dictionary.com/browse/contact> (last visited 5/11/2021) (Ex. D) (“the act or state of touching”); Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “contact” (Ex. E at 141) (“contact 1. The coming together, touching, union, or junction of surfaces or objects. 2. The junction of two conductors, so that current may flow.”); Newton’s Telecom Dictionary, 26th Edition, 2011,

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definition of “contact” (Ex. F at 320) (“A strip or piece of metal which makes an electrical contact when some electromechanical device like a relay or a magnet operates. Contacts are often plated with precious metal to prevent them from oxidizing (i.e. rusting) and thus messing up the switch. Contacts can be male (pins) or female (sockets).”); IEEE 100 The Authoritative Dictionary of IEEE Standards Terms, 7th Edition, 2000, definition of “contact” (Ex. G at 224) (“A conducting part that co-acts with another conducting part to make or break a circuit.”).

52. During prosecution, the applicant confirmed that the word “contact” is being used in the ’869 patent in conformance with its ordinary meaning in the art, as recited in Tesla’s proposed construction:

The embodiment shown in FIG. 8 of the present application is not a ‘patentably distinct species,’ as argued, but is simply a second (bottom) contact unit 14 that could be used in addition to a first (top) contact unit, like unit 12 in FIG. 4. **This type of contact configuration is similar to that used with a standard AA or D cell battery** and is clearly not ‘independent’ or ‘distinct’ from the other embodiments of the application, in the manner argued by the Examiner.

Response to Election/Restriction of 9/2/2016 at 1 (attached as Exhibit H). The applicant went on to insist that all embodiments described in the ’869 patent include contact units “similar to [those] used with a standard AA or D cell battery.” *Id.* This is also consistent with the description in the specification: “In a manner similar to a cylindrical alkaline battery, contact is made by two contact units at two cylinder ends, the base surface and the top surface of the cylinder. These two contact blocks can be pressed against one another magnetically or mechanically for secure plug-in.” (’869 patent at 11:10-15.) A POSA would have understood that the “contact configuration” of “standard AA or D cell battery” implementations referenced by the applicant in the patent’s file history, and similarly described in the specification, requires physical touching in order to establish an electrical junction between battery contacts and other components in order to use the batteries. Indeed, the concept of physically touching contacts together to establish an electrical junction is

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undoubtedly well-understood by many lay people who have installed or replaced batteries in battery-powered electronic devices by placing the batteries in a row such that positive and negative terminals of the batteries physically touch each other.

53. I understand that Unicorn has proposed to construe “contacting” as “transmitting electrical energy and/or information from or to.” Unicorn’s P.R. 4-2 Disclosure (Ex. I at 2). In my opinion, this construction is incorrect and does not reflect the meaning of the term “contacting” as understood in view of the patent, its file history, and the plain and ordinary meaning of the term in the art. Specifically, Unicorn’s construction improperly attempts to redefine “contacting” to take on the meaning of an entirely different word (“transmitting”) without any support in the patent, its file history, or Unicorn’s cited evidence. Unicorn’s proposed construction includes within its ambit the **wireless** transmission of “electrical energy and/or information,” which would not require any “contact” or “contacting” between components. Although components that are “contacting” each other could potentially transmit electrical energy and/or information between themselves, components that are “transmitting” electrical energy and/or information between themselves are not necessarily “contacting.” The word “contacting” refers to a particular **way** in which components may be connected to transmit energy and/or information. As discussed above, this particular way of connecting components requires physical touching in order to establish an electrical junction.

54. I understand from counsel that Unicorn has cited the following dictionary definitions for “contact” in support of its proposed construction: “**contact** *noun* **1.** a physical connection between two or more things, especially the fact of one touching the other □ **in contact with** touching . . . **2.** □ **to be in contact with someone** to be in a position to communicate with someone **3.** a person who can be contacted in order to get something done **4.** ELEC a section

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of a switch or connector that provides an electrical path when it touches another conductor . . . *verb* to communicate with someone.” UNICORN_00003229 at UNICORN_00003237 (Dictionary of Science and Technology) (emphasis in original) (Ex. J). In my opinion, none of these definitions supports Unicorn’s proposed construction. First, none of the definitions recites the word “transmitting,” as proposed in Unicorn’s construction. The only definition that appears to be specific to the relevant electrical art supports Tesla’s proposed construction: “a section of a switch or connector that provides an electrical path when it touches another conductor.” The other definitions are related to uses of the term “contacting” that have nothing to do with the ’869 patent or its relevant field of technology. For example, the ’869 patent does not use the word “contacting” to refer to “communicat[ing] with someone.” Instead, as discussed above, the word “contacting,” as used in the specification, refers to the physical touching of “plug” and “socket” components to establish an electrical junction. Likewise, the term is not used to describe a mere “connection” between “two or more things,” as suggested in the first definition cited by Unicorn. Instead, an electrical contact is required, which may only be established via physical touching to establish an electrical junction, as reflected in the dictionary definitions cited by Tesla.

B. “contact unit”

1. “contact unit” does not have any definite structural meaning in the art

55. Each of the asserted claims recites a “contact unit for contacting a further energy storing component.” I understand that Tesla has proposed that this term be construed as expressing “a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof.” *See* Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 3). A POSA would understand that the phrase “contact unit” does not refer to any recognizable “structure, material or acts” for performing the function of “contacting a further energy storing component” and therefore would have looked to the specification for a definition of such

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“structure, material or acts.” The phrase “contact unit” does not have any definite structural meaning. The term has no reasonably understood meaning in the art as a name for structure, and it would not bring to mind any particular or specific structure to a POSA. The term “contact unit” is not and would not have been found in dictionaries, textbooks, treatises, etc., for example, as it is not a term of art used in common parlance in the relevant technical field. The component word “unit” would be understood as simply a generic placeholder, a nonce term, for a nonspecific object or structure—similar to words like “mechanism,” “device,” or “means,” for example. The modifier “contact” fails to connote any particular structure and instead simply describes, summarizes, or re-states the function to be performed by the “unit.”

56. The Written Opinion of the International Search Authority for PCT/EP2013/054194, included in the October 30, 2014 IDS in the ’869 patent’s file history (Ex. K), confirmed that the term “contact unit” is “vague and unclear and leave[s] the reader uncertain as to the meaning of the technical feature in question.” *Id.* at “Clarity” finding 1.3. “As a result, the subject matter of said claim is not clearly defined” and “a person skilled in the art is unable to clearly identify the functional relationship among these features.” *Id.*

57. The fact that “contact unit” is not a term of art used to connote a particular, definite structure is further shown, for example, by the usage of this generic, placeholder term in prior art patents to describe a wide variety of different structures and devices designed for a wide variety of purposes. *See, e.g.*, U.S. Patent No. 4,556,765 (“’765 patent”) (Ex. L at 3:51-64, Figs. 1-2) (describing a “contact unit” mounted on a sliding door frame and another “contact unit” mounted on a door jamb that, when disconnected, indicated opening of the sliding door); U.S. Patent Application Publication No. 2004/0113728 A1 (Ex. M) (“’728 application”) ¶¶ 27-30, Figs. 1-3 (disclosing two “contact unit[s],” each comprising two contacts that, when opened and closed, may

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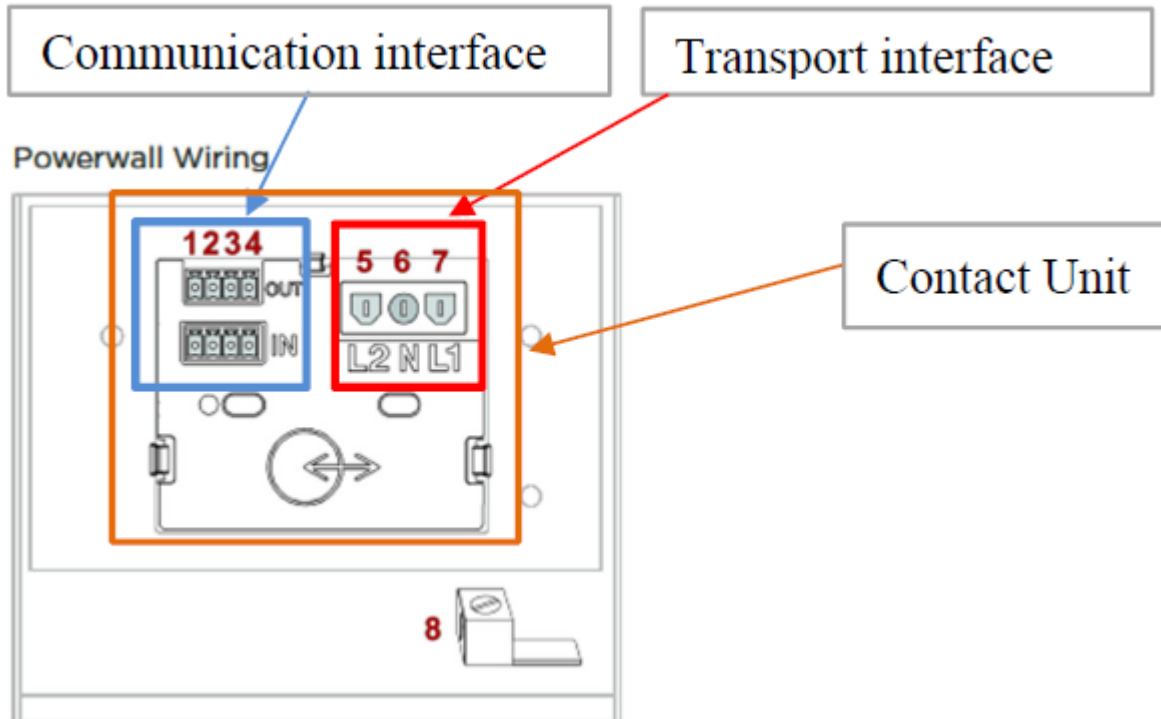
be used to “control the rotation speed” of an “armature”); U.S. Patent No. 7,688,031 (Ex. N) (“’031 patent”) at 5:54-61, Fig. 9 (describing a “contact unit” as including a variety of components, including “a ring-shaped stator 51, a rotor 52 which is rotated together with the interlock SW 62 by the motor 61, a BIN terminal 54 which electrically connects to (that is, establishes an electric continuity with) the power supply line from the onboard battery 10, and a BOUT terminal 53 which outputs the supply power to the power supply line to the ECU which can interrupt a dark current”). While some references, like the ’765 patent, referred to a “contact unit” as comprising one or more contacts for mating with contacts of a **different** “contact unit,” other references, like the ’728 application, describe **both** “female” and “male” sets of contacts as collectively comprising a single “contact unit.” Still other references, like the ’031 patent, describe a “contact unit” as comprising a wide variety of components, most of which have nothing to do with electrical contacts. This disparity in usage of the phrase “contact unit” demonstrates that the phrase has no established meaning in the art.

58. The fact that “contact unit” is not a term of art used to connote a particular, definite structure is further shown, for example, by the figures within the patent that show contact units as mere black boxes referenced as a “first contact unit” 12 and a “second contact unit” 14 in Figure 1 (*see also, e.g.,* ’869 patent at 13:51-53) and contact units “K1” and “K2” in Figure 10. These figures depict the contact units without any definitive structure that would be recognizable to a POSA.

59. The fact that the term “contact unit” could be interpreted in any number of ways to include any number of different structures and/or components is further demonstrated by Unicorn’s arbitrary inclusion of a number of unrelated components of Tesla’s Powerwall product

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in the supposed “contact unit” accused by Unicorn. As shown below, the accused “contact unit” of Tesla’s Powerwall product is boxed in orange:



Plaintiff’s Disclosure of Asserted Claims and Infringement Contentions (Ex. O at 42) (excerpting and annotating UNICORN_00002971 at UNICORN_00003018 (Ex. P)). As shown in the image above, the accused “contact unit” includes two **separate** areas of connectors, an arbitrary section of sheet metal, and other unlabeled components that have nothing to do with “contacting.”

60. The contact unit recited in the ’869 patent’s claims “has a **communication interface** for communicating with a further energy storing component of the supply network and a **transport interface** for transporting the electrical energy to the further energy storing component,” terms that themselves have no reasonably understood meaning in the art and would not bring to mind any structure in the mind of a POSA, as further discussed below. In addition, as recited in claim 3, the contact unit may also contain “an auxiliary voltage interface for transmitting

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an auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy.” Thus, for the additional reasons discussed below in connection with the “communication interface,” “transport interface,” and “auxiliary voltage interface” terms, the phrase “contact unit” does not have any definite structural meaning in the art. Furthermore, given the specification’s “black box” description of “contact unit,” and the lack of any structural meaning for the term in the art, a POSA would not be able to ascertain what constitutes a single “contact unit” from multiple “contact units.” For example, a POSA cannot reasonably distinguish between a single “contact unit” having a “communication interface,” a “transport interface,” and an “auxiliary voltage interface” from three distinct “contact units” where, for example, a first “contact unit” has a “communication interface,” a second “contact unit” has a “transport interface,” and a third “contact unit” has an “auxiliary voltage interface,” due to the lack of any definite structure associated with the term “contact unit.” In fact, Unicorn’s proposed construction—“connector that transmits electrical energy **and/or** information”—expressly contemplates a contact unit having only a transport interface or only a communication interface, further demonstrating the ambiguity of the term “contact unit” in view of the patent’s description of a contact unit containing two or three interfaces.

2. Function and structure associated with “contact unit”

61. I understand that Tesla identified the function associated with “contact unit for contacting a further energy storing component” as being “physically touching a further energy storing component to establish an electrical junction.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 3-4). For the reasons given above in connection with the “contacting” term, a POSA would have understood the term “contact unit for contacting a further energy storing component” to be associated with the function of “physically touching a further energy storing component to establish an electrical junction.” I am informed by counsel that Unicorn did not

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identify any function associated with “contact unit” (or any other claim term). I reserve the right to supplement this declaration if Unicorn identifies a function that is different from Tesla’s.

62. I further understand that Tesla has identified the following structure as corresponding to the “contact unit” term:

(1) the “socket” or the “plug” contact units 12 and 14, respectively, that implement the “the standard interfaces 34, 36, 38 illustrated in FIGS. 7 and 8” “for contacting a [further] contact unit,” and (2) the single exterior contact units that physically touch other energy storing components, shown and described in Figures 1, 2, 3, 4, 6b, 7, 8, 10, and 11 and relevant portions of the specification, and equivalents thereof.

Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 4).

63. A POSA would have understood the term “contact unit” to correspond to Tesla’s identified structure, which corresponds to the structure associated with contact units for contacting further energy storing components disclosed in the specification. In addition to the structure identified by Tesla for “contact unit,” I am informed by counsel that Unicorn also identified the following excerpt from the ’869 patent’s specification as reciting structure corresponding to the term “contact unit”:

From the corner data mentioned above, it is possible to define a design for a supply network component in which the energy stores, the energy sources and the energy consumers are then optionally combined among one another by plugs and **cables** but also by individual contact units being simply plugged together.

...

Furthermore, both in the case of the first contact unit 12 and in the case of the second contact unit 14 it can be provided that they are provided with **cables** in order, besides the standard interfaces 34, 36, 38 illustrated in FIGS. 7 and 8, to provide a connection to other functional groups, for example energy sources or energy stores according to other standards, for instance automobile batteries.

Unicorn’s P.R. 4-2 Disclosure (Ex. I at 8, 12) (quoting ’869 patent at 11:16-24, 17:59-65.)

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64. A POSA would not have understood the above-mentioned “cables” to correspond to a “contact unit for contacting a further energy storing component” for several reasons. First, as recited above, a POSA would understand that the cables “provide a connection to other functional groups, for example energy sources or energy stores according to **other standards**, for instance automobile batteries” and that the cable connections are in addition to **separate** connections involving “contact units being simply plugged together.” In other words, a POSA would understand that the cables are used for establishing connections with components that are not connected via contact units, and the cables would not be used as part of contact units for contacting further energy storing components. The patent does not describe any embodiment in which a contact unit at the end of a cable is used to contact an ESC.

65. Second, the above excerpt states that the cables are used “**besides** the standard interfaces 34, 36, 38 illustrated in FIGS. 7 and 8” (i.e., the “interfaces” associated with contact units). Thus, the cables are used “in addition to” the “standard interfaces” for contacting further energy storing components and do not replace such “standard interfaces.” *See* Cambridge Online Dictionary, definition of “besides,” <https://dictionary.cambridge.org/us/dictionary/english/besides> (last visited 5/24/2021) (Ex. Q) (“in addition to; also”). A POSA would understand that the referenced “cables” would, at most, serve an additional, separate function as part of an additional, separate structure for connecting incompatible components that cannot be connected via contact units. This distinction is also further stated in the specification, which notes the distinction between using plugs and cables to combine energy stores, energy sources, and energy consumers with “individual contact units being simply plugged together.” (*See* ’869 patent at 11:16-21 (“it is possible to define a design for a supply network component in which the energy stores, the

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energy sources and the energy consumers are then optionally combined among one another by plugs and cables but also by individual contact units being simply plugged together”).)

66. Finally, the recited “connection to other functional groups” such as “automobile batteries” implemented by the recited “cables” would not be capable of implementing the “communication interface for communicating with a further energy storing component” included in the ’869 patent’s claimed “contact unit[s],” given that communication with non-“standard” components such as “automobile batteries” is generally impossible (because automobile batteries do not include communication interfaces that could receive any communications). For all of these reasons, the recited “cables” have nothing to do with contact units for contacting further energy storing components and are not part of the structures recited in the specification that correspond to the “contact unit” term—i.e., they are not clearly linked to the recited function of “contacting a further energy storing component.”

3. Alternative construction of “contact unit”

67. If it were determined that “contact unit” is not expressed as a “means or step for performing a specified function without the recital of the structure, material, or acts in support thereof,” then I agree with Tesla that the term is indefinite. *See* Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 4). As discussed above, the term has no meaning in the art and could be interpreted to take on a wide variety of definitions, as demonstrated by the exemplary prior art usages of the term discussed above. Therefore, this term, as read in light of the specification and prosecution history, fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty.

68. In addition, if it were determined that “contact unit” is not expressed as a “means or step for performing a specified function without the recital of the structure, material, or acts in support thereof,” and if the term were not held to be indefinite, then Tesla’s proposed alternative

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construction for this term—“a single part on the exterior surface with at least one contact for physically touching another energy storing component to establish an electrical junction”—would more accurately capture the meaning of the term than Unicorn’s proposed construction—“connector that transmits electrical energy and/or information.” *Id.*; Unicorn’s P.R. 4-2 Disclosure (Ex. I) at 2. The term “connector” is only used in the ’869 patent to describe (1) a prior art “plug connector” for implementing a charger-battery connection for batteries inserted into “electric bicycles” and (2) “pack connectors” shown in Figure 11, which are “designed in the manner of crates” and have nothing to do with contact units of the supply network components that are inserted into the crates. The patent never uses the term “connector” to describe a “contact unit” that is part of an energy storing component.

69. Moreover, Unicorn’s proposed construction for “contact unit” fails to capture the meaning of the word “contact,” which requires physical touching to establish an electrical junction, for the reasons discussed above in connection with the “contacting” term. Unicorn’s proposed construction completely reads out this plain and ordinary of the term “contact” from “contact unit” without any justification in the patent, its file history, or any other evidence cited by Unicorn.

70. As noted above, I was informed by counsel that a claim term that has no accepted meaning in the art ordinarily cannot be construed broader than the disclosure in the specification. As explained above, “contact unit” has no accepted meaning in the art to a POSA. A POSA would recognize, from the patent’s specification and file history, that all described embodiments of “contact unit[s] for contacting further energy storing components” are on the exterior of the supply network components described in the specification. *See generally* Figs. 1, 2, 3, 4, 6b, 7, 8, 10, and 11 and relevant portions of the specification describing such figures. In addition, a POSA would understand that the word “unit” in “contact unit” refers to a “single” or “unitary” part, as shown

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and described in the same embodiments. *See* Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “unit” (Ex. E) (“An item, group, structure, or entity which is regarded as a single entity or whole”); Cambridge Dictionary Online, definition of “unit” (<https://dictionary.cambridge.org/us/dictionary/english/unit> (last visited 5/13/2021)) (Ex. R) (“a single item or a separate part of something larger”); Merriam-Webster Online Dictionary, definition of “unit” (<https://www.merriam-webster.com/dictionary/unit> (last visited 5/10/2021)) (Ex. S) (“a single thing, person, or group that is a constituent of a whole”). Tesla’s addition of “**a single part** on the exterior surface” comports with the plain and ordinary meaning of “unit” in the art. *See also* UNICORN_00003229 at UNICORN_00003253 (Ex. J) (listing the following definitions for “unit”: (1) “a component of something larger” and (2) “a person, group or device that is complete in itself”). I understand that Unicorn has argued that a contact unit may be a single entity or comprise a “group” of items. I disagree. As discussed above, a POSA would understand a unit to be a single entity.

C. “gateway”

1. “gateway” does not have any definite structural meaning in the art

71. Although the term “gateway” has a plain and ordinary meaning in the field of telecommunications, as recited in dictionary definitions quoted below, it does not have a plain and ordinary meaning in the ’869 patent’s field of energy storage systems. The term “gateway” is not used in accordance with its meaning in the telecommunications field in the ’869 patent.

72. Each of the asserted claims recites a “gateway for coupling the at least one contact unit with the energy store.” I understand that Tesla has proposed that this term be construed as expressing “a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof.” *See* Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 6). A POSA would understand that the word “gateway” does not refer to any recognizable

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“structure, material or acts” for performing the function of “coupling the at least one contact unit with the energy store” and therefore would have looked to the specification for a definition of such “structure, material or acts.” As discussed above, the phrase “contact unit” itself does not refer to any recognizable “structure, material or acts,” which further indicates that the recited “gateway,” which must couple a “contact unit” to an “energy store,” likewise recites no recognizable structure.

73. The word “gateway” by itself does not have any definite structural meaning. The term has no reasonably understood meaning in the art as a name for structure, and it would not bring to mind any particular or specific structure to a POSA. The term “gateway” is associated with dictionary definitions that have nothing to do with “coupling” a “contact unit” with anything, let alone an “energy store.” *See, e.g.*, Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “gateway” (Ex. E at 312 (“1. A device which enables networks to connect by performing the necessary protocol conversions. . . . 2. In a communications network, or multiple interconnected networks, a device or software which determines where packets, messages, or other signals travel to next. A gateway, using resources such as header information, algorithms, and router tables, establishes the best available path from source to destination.”); McGraw-Hill Dictionary of Electrical and Computer Engineering, 2004, definition of “gateway” (Ex. T) (“A point of entry and exit to another system, such as the connection point between a local-area network and an external-communications network.”); Newton’s Telecom Dictionary, 26th Edition, 2011, definition of “gateway” (Ex. F) (“A gateway is what it sounds like. It’s an entrance and exit into a communications network. . . . Technically, a gateway is an electronic repeater and signal regeneration device that intercepts and steers electrical signals from one network to another. Generally, the gateway includes a signal conditioner which filters out unwanted noise and controls characters.”). Because the term “gateway” has no well-defined definition, or at least no well-

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defined definition that is in any way related to coupling a “contact unit” to an “energy store,” a POSA would understand that “gateway” is a generic placeholder, a nonce term, for a nonspecific object or structure—similar to words like “mechanism,” “device,” or “means,” for example.

74. The ’869 patent’s specification mentions the word “gateway” only once: “The functional group 16 is connected in each case to the first contact unit 12 and a second contact unit 14 by means of a coupling unit 18, which can also be referred to as a **gateway**.” (’869 patent at 13:64-67.) While this excerpt from the specification appears to equate the term “coupling unit” with “gateway,” the ’869 patent’s file history confusingly distinguishes between the two terms when the applicant purposely deleted references to “coupling unit” in the claims to replace them with “gateway.” Amendment and Response to Final Office Action of March 5, 2018, at 2 (Ex. U.) (amending claims to replace references to “coupling unit” with references to “gateway”). The file history is otherwise silent as to why this change from “coupling unit” to “gateway” was implemented. Thus, neither the specification nor the file history explains the difference between a “coupling unit” and a “gateway.” Because of this, and for the additional reasons discussed below, I agree with Tesla that the term “gateway” is indefinite as it is used in the ’869 patent’s claims, because a POSA would not understand how to define the term in the context of the specification and file history. Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 6).

75. To the extent that the term “coupling unit” is used synonymously with “gateway” in the patent, “coupling unit” likewise has no recognized definition in the art and does not change my opinion that the term “gateway” is indefinite. A POSA would understand that “coupling unit” is a generic placeholder, a nonce term, for a nonspecific object or structure—similar to words like “mechanism,” “device,” or “means.” The Written Opinion of the International Search Authority for PCT/EP2013/054194, included in the October 30, 2014 IDS in the ’869 patent’s file history

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(Ex. K), confirmed that the term “coupling unit” is “vague and unclear and leave[s] the reader uncertain as to the meaning of the technical feature in question.” *Id.* at “Clarity” finding 1.3. “As a result, the subject matter of said claim is not clearly defined” and “a person skilled in the art is unable to clearly identify the functional relationship among these features.” *Id.* The lack of any structural description for the claimed “gateway” or the disclosed “coupling unit” is further highlighted by the fact that these purported structures are disclosed merely as generic boxes within the patent, such as in Figure 1 (“coupling unit 18, which can also be referred to as a gateway,” ’869 patent at 13:64-67), Figure 9 (“a coupling unit 18,” *id.* at 17:66-66), and Figure 10 (“GW1”).

76. Given the lack of disclosure in the specification and file history, the terms “gateway” and “coupling unit” could be interpreted in any number of ways to include any number of different structures and/or components—there is no definite structure associated with the claimed “gateway” or disclosed “coupling unit.” As such there is no definite structure associated with the “gateway” that clearly delineates its boundaries as a structure distinct from the “energy store” and “contact unit” that it is purportedly “coupling.” This is demonstrated by Unicorn’s arbitrary identification of a “DC/DC converter” as implementing a supposed “gateway” in Tesla’s accused products. *See, e.g.,* Plaintiff’s Disclosure of Asserted Claims and Infringement Contentions (Ex. O at 13-16). The only embodiments in the ’869 patent that include a “coupling unit” and a DC/DC converter, however, show DC/DC converters that are external to, and not part of, coupling units. (*See* ’869 patent at Fig. 9 (depicting a coupling unit, labeled “18,” that is separate from DC/DC converters); Fig. 10 (showing coupling units, labeled “GW1,” that are separate from DC/DC converters).) Thus, Unicorn’s arbitrary identification of “gateway” as comprising “one or more DC/DC converters” is directly contradicted by embodiments in the specification and would not comport with how a POSA would understand the term “gateway,” if

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the term may be understood at all. In sum, the word “gateway” is a nonce term that may be twisted to cover anything, even embodiments that contradict what is disclosed as embodying the term “gateway” in the patent.

2. Function and structure associated with “gateway”

77. I understand that Tesla identified the function associated with “gateway for coupling the at least one contact unit with the energy store” as “coupling the at least one contact unit with the energy store.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 6). I agree with Tesla that a POSA would have understood this to be the function associated with this term. I am informed by counsel that Unicorn did not identify any function associated with “gateway” (or any other claim term). I reserve the right to supplement this declaration if Unicorn identifies a function that is different from Tesla’s.

78. I understand that Tesla argues that no structure is disclosed in the specification as being associated with the function of “coupling the at least one contact unit with the energy store” performed by the “gateway” term and, therefore, that the term is indefinite. Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 6). A POSA would have looked to the specification for structure specifically associated with a “gateway” and would have failed to find any such disclosed structure. At best, a POSA would have only been able to associate the indefinite black boxes disclosed as “coupling unit 18” or “GW1” in Figs. 1, 9, and 10. Therefore, I agree with Tesla that the term is indefinite as the term has no established meaning within the art and there is no corresponding structure disclosed for performing the claimed function of “coupling the at least one contact unit with the energy store.”

79. Alternatively, if “gateway” is equated to “coupling unit,” despite the patent’s file history, and if “gateway” is not indefinite, Tesla argues that the structure corresponding to the term “gateway” is “the ‘coupling unit 18’ shown in Figs. 1, 9, and 10 and described in related portions

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of the specification.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 6). To the extent that a POSA could interpret the word “gateway” in the context of the ’869 patent, a POSA would have identified these black box structures as being the only disclosure of a “gateway,” given the specification’s statement that “coupling unit 18” “can also be referred to as a gateway.” (’869 patent at 13:64-67.) Tesla’s identified structure corresponds to all of the embodiments for these black box coupling units disclosed in the specification.

80. I understand that Unicorn has identified Figs. 1 and 9 and related sections of the specification as structure corresponding to a “gateway.” See Unicorn’s P.R. 4-2 Disclosure (Ex. I) at 13-14. In my opinion, Unicorn’s identification of structure associated with the “gateway” term is flawed for at least two reasons. First, Unicorn identifies the following two paragraphs from the ’869 patent, which a POSA would **not** identify as describing structure associated with a gateway:

In the charging and discharging strategies explained in relation to the controlling device, the battery determines the voltage level in the electricity network. Instead of a switch, it is possible to provide a direct current converter (DC/DC converter) in the supply network component, which converter enables both a voltage increase and a decrease between the functional units and a system voltage at the at least one contact unit and for this purpose, in a manner similar to a laboratory power supply unit, an adjustable voltage and current limit for both current directions. This allows an exact energy distribution, regulation and limitation of each individual supply network component. It would thus be conceivable to make an energy consumer such as a vehicle, for example, usable again by exchanging only 10% of discharged supply network components for fully charged supply network components.

...

As already described in the introductory part of the description, the functional group 16 can have a bidirectional direct current converter 79, which regulates a charging and discharging process of the functional unit 55. The corresponding signal profiles are illustrated in FIG. 9. Parameters that predefine boundary conditions can be stored in a data set 77 in the supply network component 10 or in the functional group 16 and are thus available to the bidirectional direct current converter 79. Furthermore, a second direct current converter 82 is provided, which provides the auxiliary voltage at the auxiliary voltage interface 38 for the auxiliary voltage mesh.

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Unicorn's P.R. 4-2 Disclosure (Ex. I at 14 (quoting '869 patent at 8:4-13)).

81. The paragraphs above describe DC/DC converters, which are consistently described throughout the '869 patent's specification as being separate and distinct from coupling units and gateways. For example, Figure 9 is labeled at the bottom with numbers "18" (identifying the gateway) and "16" (identifying the functional group, which includes two DC/DC converters). ('869 patent at 17:66-18:3). Similarly, Figure 10 shows DC/DC converters that are separate and distinct from coupling units (labeled "GW1"). ('869 patent at 18:6-7 ("GWn' denotes an index for the coupling unit 18")). Thus, a POSA would not associate the above two paragraphs with structure for a "coupling unit" or "gateway."

82. Second, Unicorn fails to identify Figure 10 and related disclosures in the specification as describing structure associated with the "gateway" term. As noted above, the label "GW1," which appears in multiple locations in Figure 10, denotes a coupling unit. ('869 patent at 18:4-7.) Therefore, to the extent the terms can be understood, a POSA would identify Figure 10 and the following paragraph as structure associated with the "coupling unit"/"gateway" terms:

FIG. 10 illustrates by way of example a supply network 90 comprising a plurality of supply network components 10, 92, 94, 95, 96, 97 and 98. In this case, the supply network 90 is explained on the basis of the example of a wind power installation. Accordingly, the supply network 90 comprises a supply network component 94 designed as an energy source. The supply network component 94 correspondingly comprises four contact units and the wind turbine as a functional group, wherein the functional group furthermore has cables and distributors for linking the wind turbine within the power mesh 22 to its four contact points. In each case two above-described supply network components 10, 92, 95, 96, 97, 98 designed as energy stores are connected to three of the four contact points of the supply network component 94. The power mesh 22 can thus be operated in direct-current operation. Each of the supply network components 10, 92, 94, 95, 96, 97, 98 designed as energy stores comprises within its functional group a dedicated direct current converter which can regulate the charging and discharging individually for the respective functional group of each supply network component 10, 92, 95, 96, 97, 98. Consequently, balancing of the individual supply network components 10, 92, 95, 96, 97, 98 is no longer necessary. In this way, a large energy store for

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temporarily storing the energy provided by the energy source 94 can be made available in a particularly simple manner. Furthermore, an open continuation 100 of the supply network 90 is illustrated schematically; further supply network components, for example consumers, can then be connected here.

(’869 patent at 18:33-61).

3. Alternative construction of “gateway”

83. If it were determined that “gateway” is not expressed as a “means or step for performing a specified function without the recital of the structure, material, or acts in support thereof,” then I agree with Tesla that the term is indefinite. As discussed above, the term has no meaning in the art and could be interpreted to take on a wide variety of definitions, as demonstrated by the exemplary dictionary definitions of the term discussed above. Therefore, in my opinion, this term, as read in light of the specification and prosecution history, fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty.

84. In addition, if it were determined that “gateway” is not expressed as a “means or step for performing a specified function without the recital of the structure, material, or acts in support thereof,” and if the term were not held to be indefinite, then Tesla’s proposed alternative construction for this term—“a single part that serves as a point of entry and exit to another system”—would more accurately capture the meaning of the term than Unicorn’s proposed construction—“coupling unit (i.e., coupler) that transfers electrical energy.” As noted above, the patent applicant purposely replaced the phrase “coupling unit” with “gateway,” and, to the extent “gateway” would have any meaning at all to a POSA, it would necessarily mean something that is specific to the meaning of “gateway” as opposed to “coupling unit,” as described the ’869 patent.

85. Unicorn’s inclusion of the word “coupler” in its definition is therefore improper. The term “coupler” appears nowhere in the specification or file history of the ’869 patent, and it is unclear why Unicorn has proposed it for inclusion in its proposed construction, particularly

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given that the applicant purposely removed all references to “coupling unit” from the claims. I am informed that Unicorn submitted dictionary definitions for “coupler” that recite: (1) “a device, such as a transformer, used to couple two or more electrical circuits,” and (2) “[a] component used to transfer energy from one circuit to another.” UNICORN_00003222 at UNICORN_00003224 (Ex. V); UNICORN_00003256 at UNICORN_00003260 (Ex. W). These definitions have nothing to do with a “gateway,” which is not described in the patent or anything else that I am aware of as including a “transformer” or coupling “electrical **circuits**.” Unicorn’s definitions of “coupling”—(1) “the act or process of linking two or more circuits so that power can be transferred between them usually by mutual induction, as in a transformer, or by means of a capacitor or inductor common to both circuits,” (2) “[a] mutual relation between two circuits that permits energy transfer from one to another, through a wire resistor, transformer, capacitor, or other device,” and (3) “[a] hardware device used to make a temporary connection between two wires”—are likewise inapposite, because they have nothing to do with how a POSA would understand the word “gateway.” UNICORN_00003222 at UNICORN_00003224 (Ex. V); UNICORN_00003256 at UNICORN_00003260 (Ex. W). Moreover, these definitions further demonstrate that the phrase “coupling unit” is indefinite, as it could be interpreted to mean basically anything (e.g., a “wire resistor, transformer, capacitor, or other device,” as recited in Unicorn’s cited dictionary definition). Thus, to the extent “gateway” is interpreted to mean “coupling unit,” it is indefinite.

86. Unicorn’s requirement that a gateway “transfer” “electrical energy” is also not associated with the plain and ordinary meaning of “gateway” in view of the patent’s specification or file history, so it is unclear why Unicorn has proposed these words for inclusion in its proposed construction.

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87. I am informed that Unicorn served a copy of the following dictionary definitions for “gateway” with its proposed constructions: (1) “an entrance that may be closed by or as by a gate,” (2) “a means of entry or access,” (3) “[a] point of entry and exit to another system, such as the connection point between a local-area network and an external-communications network,” and (4) “an entrance that is accessible through a gate.” UNICORN_00003222 at UNICORN_00003225 (Ex. V); UNICORN_00003256 at UNICORN_00003264 (Ex. W); UNICORN_00003229 at UNICORN_00003244 (Ex. J). In my opinion, the definitions that refer to a point of entry and exit are closer to how a POSA would understand the word “gateway” than Unicorn’s proposed construction, to the extent “gateway” can be understood at all, and these definitions support Tesla’s alternative proposed construction. I note that other definitions submitted by Unicorn for “gateway” demonstrate how the term “gateway” could be construed to take on a wide variety of meanings in the art: (1) “hardware and software that connect incompatible computer networks, allowing information to be passed from one to another,” (2) “a means of doing or achieving something,” (3) “a device that links two dissimilar networks,” (4) “a software protocol translation device that allows users working in one network to access another,” and (5) “software that allows mail messages to be sent via a different route or to another network.” UNICORN_00003222 at UNICORN_00003225 (Ex. V); UNICORN_00003229 at UNICORN_00003244 (Ex. J). These definitions support my opinion that the term “gateway” would be indefinite to a POSA—a POSA would not know, based on the mere use of the word “gateway,” whether the “gateway” includes hardware, software, some combination of the two, or other components. It could mean almost anything.

88. Unicorn’s proposed construction for “gateway” refers to a “coupling unit,” which has no plain and ordinary meaning in the art. As noted above, I was informed by counsel that a

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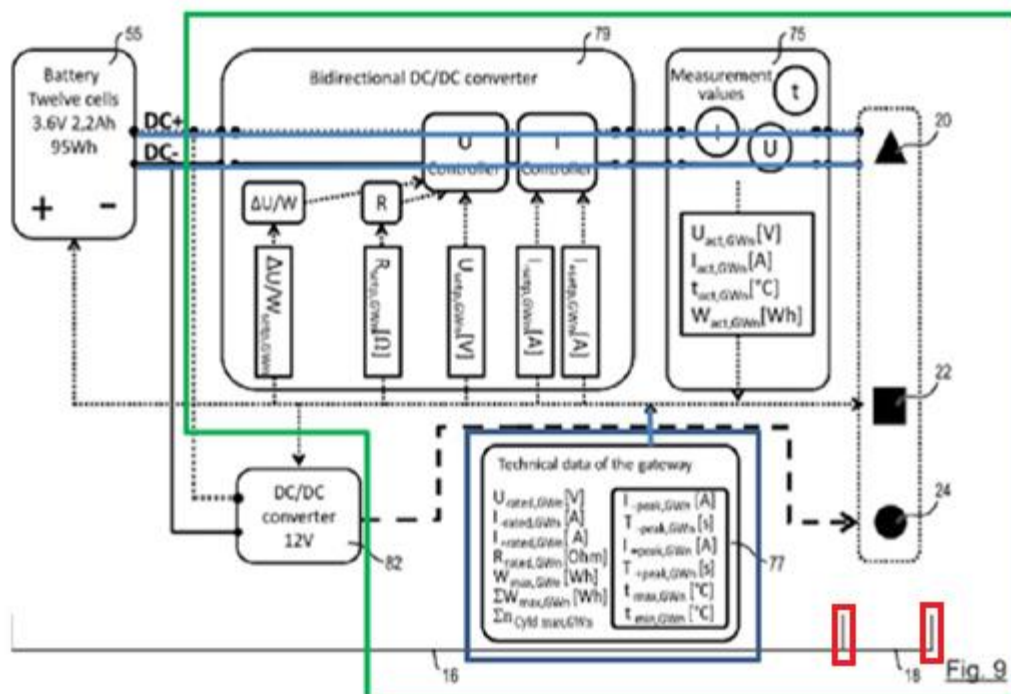
claim term that has no accepted meaning in the art ordinarily cannot be construed broader than the disclosure in the specification. A POSA would recognize, from the patent's specification and file history, that all described embodiments of a "coupling unit" or "gateway" are points of entry and exit to other systems, such as the points of entry associated with the energy stores and "[w]ind turbine" shown in Figure 10. *See generally* Figs. 1, 9, and 10 and relevant portions of the specification describing such figures. In addition, a POSA would understand that the word "unit" in "coupling unit" refers to a "single" or "unitary" part, as shown and described in the same embodiments. Tesla's addition of "**a single part** that serves as a point of entry and exit to another system" therefore comports with the plain and ordinary meaning of "unit" and the specification's consistent depictions and descriptions of coupling units as comprising single parts. *See* Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of "unit" (Ex. E) ("An item, group, structure, or entity which is regarded as a single entity or whole"); Cambridge Dictionary Online, definition of "unit" (<https://dictionary.cambridge.org/us/dictionary/english/unit> (last visited 5/13/2021)) (Ex. R) ("a single thing or a separate part of something larger"); Merriam-Webster Online Dictionary, definition of "unit" (Ex. S) (<https://www.merriam-webster.com/dictionary/unit> (last visited 5/10/2021)) ("a single thing, person, or group that is a constituent of a whole"); *see also* UNICORN_00003229 at UNICORN_00003253 (Ex. J) (listing the following definitions for "unit": (1) "a component of something larger" and (2) "a person, group or device that is complete in itself").

89. I understand that Unicorn has argued that a gateway can include a number of different items, such as a DC-DC converter, connecting wires, resistors, diodes, etc. Open. Br. at 18-19. This is incorrect. A POSA would not understand the '869 patent to have associated any of these things with a "gateway." As discussed above, the gateway is essentially undescribed in the

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'869 patent and, therefore, unassociated with any of these items. Moreover, a DC-DC converter is expressly and consistently described as being separate and not part of a gateway throughout the patent. I also understand that Unicorn has argued that a gateway may be a single entity or comprise a “group” of items. I disagree. As discussed above, a POSA would understand a unit to be a single entity, not a “group.”

90. I understand that Mr. Dillard was quoted as follows in Unicorn’s opening claim construction brief: “In the field of electrical energy storage, and electronics generally, ‘coupling’ refers to transferring energy by means of various well-known structures such as wires (at the simplest), capacitors, inductors, transformers, converters, or combinations of such.” I disagree with Mr. Dillard’s novel definition of “coupling.” A POSA would not understand “coupling” to refer to the transfer of energy. While it is true that certain of the structures referenced by Mr. Dillard and in Unicorn’s brief could be used to *mechanically* connect or pair two different circuits, the *electrical* transfer of energy would not necessarily arise from such a connection—an externally sourced current or voltage would be required. Moreover, a POSA would not associate the term



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“coupler” with “coupling unit” and would not associate the dictionary definition cited by Unicorn for “coupler” with the recited “coupling unit” in the ’869 (i.e., “[a] component used to transfer energy from one circuit to another”). This is not a term or definition that a POSA would be familiar with or that would come to mind when encountering the term “coupling unit.”

91. I understand that Unicorn has asserted, based on statements from Mr. Dillard, that, referring to Fig. 9: “the gateway includes the DC-DC converter 79 as confirmed by box 77 of that figure labeled ‘Technical data of the gateway’ and shows the parameters used by the DC-DC converter to control the transfer of energy.” I disagree with this statement. The coupling unit/gateway in Fig. 9 does *not* include DC-DC converter 79, and the referenced “technical data of the gateway” is so named because it comes *from* the gateway, not because it is data used or inside the gateway. A POSA would not have associated anything to the left of the leftmost, red hash mark above the “18” in Fig. 9 above with the “coupling unit” described in the patent.

D. “communication interface”

1. “communication interface” does not have any definite structural meaning in the art

92. Each of the asserted claims recites a “communication interface for communicating with a further energy storing component.” I understand that Tesla has proposed that this term be construed as expressing “a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof.” *See* Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B) at 10. A POSA would understand that the phrase “communication interface” does not refer to any recognizable “structure, material or acts” for performing the function of “communicating with a further energy storing component” and therefore would have looked to the specification for a definition of such “structure, material or acts.”

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93. The phrase “communication interface” by itself does not have any definite structural meaning. The term has no reasonably understood meaning in the art as a name for structure, and it would not bring to mind any particular or specific structure to a POSA. One dictionary defines “communication interface” as “[t]hat part of the API devoted to communications with other application software, external data transport facilities, and devices,” which does not specifically relate to “communicating with a further energy storing component.” IEEE 100 The Authoritative Dictionary of IEEE Standards Terms, 7th Edition, 2000, definition of “communication interface” (Ex. G).

94. Definitions associated with the constituent parts of “communication interface” likewise do not yield a reasonably certain definition for the phrase. Dictionary definitions show that the word “interface” could be interpreted in many different ways. *See, e.g.*, Comprehensive Dictionary of Electrical Engineering, 1999, definition of “interface” (Ex. X at 335) (“the set of rules specified for communicating with a defined entity”); Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “interface” (Ex. E at 382) (“1. The point or points where two entities meet. For instance, the connection between devices exchanging information 2. A device which serves to connect a computer to peripheral devices or a network. . . . 3. Any interface (1) used in association with a computer, such as those between programs, between hardware and software, between hardware and a user, or between software and a user.”); McGraw-Hill Dictionary of Electrical and Computer Engineering, 2004, definition of “interface” (Ex. T at 300) (“1. Some form of electronic device that enables one piece of gear to communicate with or control another. 2. A device linking two otherwise incompatible devices, such as an editing terminal of one manufacturer to typesetter of another.”); Newton’s Telecom Dictionary, 26th Edition, 2011, definition of “interface” (Ex. F at 618) (“1. Noun. A mechanical or electrical link

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connecting two or more pieces of equipment together. 2. Noun. A shared boundary. A physical point of demarcation between two devices where the electrical signals, connectors, timing and handshaking are defined. The procedures, codes and protocols that enable two entities to interact for a meaningful exchange of information.”); Merriam-Webster Online Dictionary, definition of “interface” (<https://www.merriam-webster.com/dictionary/interface> (last visited May 10, 2021)) (Ex. Y) (“the place at which independent and often unrelated systems meet and act on or communicate with each other. b: the means by which interaction or communication is achieved at an interface. : a surface forming a common boundary of two bodies, spaces, or phases.”).

95. Unicorn’s dictionary definitions of “interface” likewise fail to provide any definitive meaning of the term. *See* UNICORN_00003229 at UNICORN_00003247 (Ex. J) (“1. a point at which one computer system ends and ether begins 2. a circuit, device or port that allows two or more incompatible units to be linked together in a standard communication system, allowing data to be transferred between them 3. a section of a program which allows transmission of data to another program”); UNICORN_00003256 at UNICORN_00003266 (Ex. W) (“1. Some form of electronic device that enables one piece of gear to communicate with or control another. 2. A device linking two otherwise incompatible devices, such as an editing terminal of one manufacturer to typesetter of another. . . . A shared boundary; it may be a piece of hardware used between two pieces of equipment, a portion of computer storage accessed by two or more programs, or a surface that forms the boundary between two types of materials.”); UNICORN_00003280 at UNICORN_00003283 (Ex. Z) (providing 15 very different definitions of “interface,” including: “[a] point or device at which a. transition between media, power levels, nodes of operation, etc., is made,” “[t]he means of connection between two logic elements, often elements that belong to two different ‘families,’” [t]he hardware or software required to be able to

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communicate with, sense, or control external equipment,” and “[a] common or shared boundary between two or more instruments, devices, or systems, which enables exchange of information, among interconnecting units or systems that may not be directly compatible”).

96. In view of the above definitions for “interface,” a communication interface could consist of a wide variety of things, including a set of rules, various types of hardware, software, a shared boundary, or a transition point. In sum, there is no accepted understanding of “interface” that could bring to mind any particular structure to a POSA encountering the phrase “communication interface” as it has been used in the ’869 patent.

97. Similarly, dictionary definitions show that the word “communication” could be interpreted in many different ways. *See, e.g.*, Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “communication” (Ex. E at 127) (“Also called communications (2), or telecommunication. 1. The transmission of information between two or more points or entities. . . . 2. The information conveyed via communication 3. The use of electrical, electronic, electromagnetic, optical, or acoustic means to transmit information between two or more points. Also, the conveyed information.”); IEEE 100 The Authoritative Dictionary of IEEE Standards Terms, 7th Edition, 2000, definition of “communication” (Ex. G at 197) (“The flow of information from one point, known as the source, to another, the receiver.”); Merriam-Webster Online Dictionary, definition of “communication” (<https://www.merriam-webster.com/dictionary/>

communication (last visited May 10, 2021) (Ex. AA) (“a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior”); Merriam-Webster Online Dictionary, definition of “communications” (<https://www.merriam-webster.com/dictionary/communication> (last visited May 10, 2021) (*Id.*) (“a system (as of

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telephones or computers) for transmitting or exchanging information”); Merriam-Webster Online Dictionary, definition of “communicate” (<https://www.merriam-webster.com/dictionary/communicate> (last visited May 10, 2021) (Ex. BB) (“to transmit information, thought, or feeling so that it is satisfactorily received or understood”). UNICORN_00003229 at UNICORN_00003232 (Ex. J) (“the passing of information”); UNICORN_00003280 at UNICORN_00003282 (Ex. Z) (“1. The transmission of information from one point, person, or equipment to another. 2. The sensing of a measurement signal or phenomena for display, recording, amplification, transmission, computing, or processing into useful information. 3. Transmission of intelligence between points of origin and reception without alteration of the sequence or structure of the information content.”).

98. According to the foregoing dictionary definitions, communication could involve the “passing,” “transmission,” “sensing,” “exchange,” or “flow,” of “information,” a “signal or phenomena,” or “intelligence” via any of a number of different mechanisms and for a variety of different purposes. Thus, there is no accepted understanding of “communication” that could bring to mind any particular structure to a POSA encountering the phrase “communication interface.”

99. A POSA would have no idea whether the phrase “communication interface” includes some subset, all, or none of the above concepts, particularly given that the communication interface is recited to be part of a “contact unit for contacting a further energy storing component,” which would only further confuse a POSA as to what “communication interface” refers to. Although the patent briefly references aspects of “communication interface[s]” other than an RFID transponder, the only exemplary communication interface **for communicating with a further energy storing component** disclosed in the patent is “an RFID communication interface.” (*See, e.g.,* ’869 patent at 15:14-23 (“The communication interface 34 can be embodied in a wired or

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wireless fashion. In particular, capacitive, inductive or optical transmission can also take place via the communication interface 34. In particular, however, it is provided that the communication interface 34 communicates with adjacent supply network components 10 by means of RFID techniques.”.) Given that the communication interface is part of a “contact unit for contacting a further energy storing component,” a POSA would understand that “communication interface” is a phrase coined to refer to a specific structure that is unique to the ’869 patent’s alleged invention, given the inherent confusion associated with trying to integrate a communication interface—particularly a “wired” communication interface—into a contact unit designed to physically touch an adjacent energy storing component to establish an electrical junction.

100. Because the phrase “communication interface” has no definition in the art, a POSA would understand that “communication interface” is a generic placeholder, a nonce term, for a nonspecific object or structure—similar to words like “mechanism,” “device,” or “means.” The Written Opinion of the International Search Authority for PCT/EP2013/054194, included in the October 30, 2014 IDS in the ’869 patent’s file history (Ex. K), confirmed that the term “communication interface” is “vague and unclear and leave[s] the reader uncertain as to the meaning of the technical feature in question.” *Id.* at “Clarity” finding 1.3. “As a result, the subject matter of said claim is not clearly defined” and “a person skilled in the art is unable to clearly identify the functional relationship among these features.” *Id.*

101. The term “communication interface” could be interpreted in any number of ways to include any number of different structures and/or components. This is demonstrated by Unicorn’s arbitrary identification of multiple Powerwall terminals that have nothing to do with communication as being part of a supposed “communication interface”:

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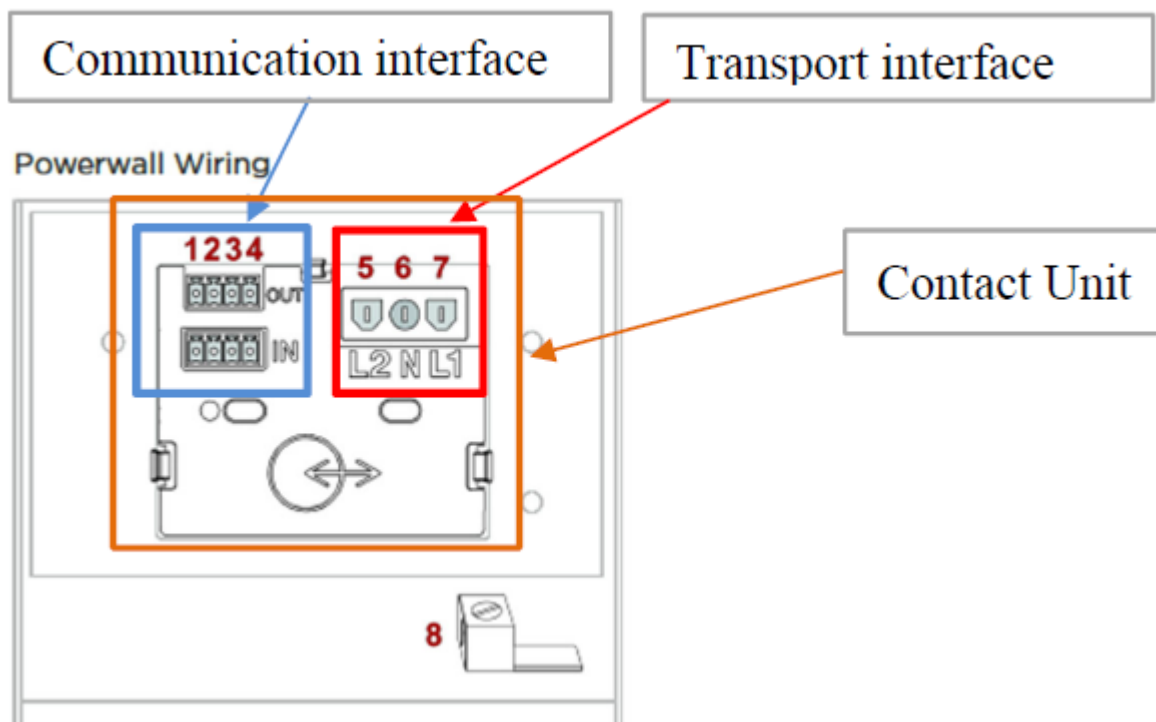


Table 3. Powerwall Wiring: Communication

Powerwall Terminal	Recommended Wire Color	Wire Gauge
1 12V + (Logic +)	Brown	18 - 16 AWG (0.8 - 1.5 mm ²)
2 GND (Earth)	White	18 - 16 AWG (0.8 - 1.5 mm ²)
3 CN + (CAN HI)	Blue	24 - 16 AWG (0.2 - 1.5 mm ²)
4 CN - (CAN LO)	Yellow	24 - 16 AWG (0.2 - 1.5 mm ²)
Cable Shield/Drain Wire	(Terminate at Powerwall chassis ground lug only)	

Plaintiff's Disclosure of Asserted Claims and Infringement Contentions (Ex. O at 47) (excerpting and annotating UNICORN_00002971 at UNICORN_00003018 (Ex. P)). In particular, the terminals labeled "1" and "2" are 12V and ground terminals that Unicorn itself acknowledges have nothing to do with communication. Specifically, Unicorn identifies the 12V terminal as allegedly implementing an "auxiliary voltage interface" in another part of its infringement contentions. (Ex. O at 56-58.) Claim 3 and the '869 patent's specification defines an auxiliary voltage interface as a feature that is separate from, and additional to, the recited communication interface. (*See, e.g.,*

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'869 patent at 14:11-12 (describing the auxiliary voltage interface as a separate, optional feature that “need not necessarily be present”); *see also id.* at 14:55-59, 16:1-5.) Unicorn simply drew a box around a set of terminals, one of which it openly admits has nothing to do with communication, and called them a “communication interface.” The specification refers to the auxiliary voltage interface as needing to be separate from the communication interface to achieve galvanic isolation. ('869 patent at 15:18-23 (“In particular, however, it is provided that the communication interface 34 communicates with adjacent supply network components 10 by means of RFID techniques. This enables, in particular, **galvanic isolation** of the data mesh 20 from the power mesh 22 and the auxiliary voltage mesh 24.”).) Thus, Unicorn’s identification of the auxiliary voltage interface as being part of a communication interface runs contrary to the specification and demonstrates why a POSA would understand “communication interface” to be a meaningless placeholder for structure that is only identifiable in the specification.

2. Function and structure associated with “communication interface”

102. I understand that Tesla identified the function associated with “communication interface for communicating with a further energy storing component” as “exchanging information with a further energy storing component capable of understanding the information.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 10). I agree with Tesla that a POSA would have understood this to be the function associated with this term. (*See* '869 patent at 9:8-11 (“Via the communication interface, all required technical data and physical parameters can be exchanged electronically between supply network components.”).) A POSA would understand that the function of the recited communication interface would be exchanging understandable information with a further energy storing component by virtue of the fact that the energy storing components of the supply network must all be capable of identifying and authenticating themselves on the supply network as well as recognizing safety conditions that may be triggered by other energy

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storing components in the network. (*See, e.g.*, Applicant Arguments/Remands Made in Amendment of 3/5/2018 (Ex. U at 9-10) (“[A] communication interface of each energy storing component interacts with a switch such that electrical power is to be supplied only after a release is made, the release being subject to an **authentication** and **identification** (via the communication interface) of the compatibility of said energy storing component to the present supply network As such, only if compatibility is confirmed will a connection be made, and doing so will be safe as compatibility is ensured in an ‘autonomous’ manner. Generally, operational safety of using the subject energy storing components is substantially increased as a result.”).) For example, the mere relay of information via CAN bus daisy chaining would not be an exchange of understandable information. I am informed by counsel that Unicorn did not identify any function associated with “communication interface” (or any other claim term). I reserve the right to supplement this declaration if Unicorn identifies a function that is different from Tesla’s.

103. Tesla argues that the structure corresponding to the term “communication interface” is “an RFID transponder for transmitting and receiving all required technical data and physical parameters between energy storing components, and equivalents thereof.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 10). A POSA would have identified this structure as being associated with a “communication interface,” given an RFID transponder is the only example of a communication interface provided in the specification. (’869 patent at 10:29-41, 15:18-21, 16:44-47.)

104. I understand that Unicorn has identified Figs. 1, 3, 9 and 10 and related sections of the specification as structure corresponding to a “communication interface.” *See* Unicorn’s P.R. 4-2 Disclosure (Ex. I at 15-17). In my opinion, Unicorn’s identification of structure associated with the “communication interface” term is flawed. First, Unicorn identifies the following

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paragraph from the '869 patent, which a POSA would not associate with the claimed “communication interface.”

The so-called ‘EnergyBus’ standard on the basis of the standard of CANopen (Controller Area Network) forms the basis for the control and communication of intelligent electricity network components in the mobile application. Load regulation is distributed among a plurality of bus subscribers and it is absolutely necessary to define an unambiguous master for the energy management. The number of batteries is limited here. The data connection is created in bus form as a CAN bus. The routing of the electricity cannot be comprehended unambiguously.

Id. at 15. This paragraph is describing a prior art communications method that a POSA would understand to have been distinguished from the '869 patent's purported invention in the specification and during prosecution of the '869 patent. The specification makes it clear that the claimed communication interface must be capable of “unambiguously” routing electrical energy, unlike the “EnergyBus” embodiment described in the paragraph above. ('869 patent at 5:17-25, 10:45-49, 11:41-49, 14:33-48.) No embodiment of the invention is described as using a CAN bus, and the specification explains that such an arrangement would not accomplish the purposes of the invention. (*See id.* at 10:32-36, 15:20-22 (“RFID communication is chosen for data transmission between intelligent electricity network components. **During transport, sorting and storage of supply network components, this enables communication and locating without contact-making processes.** . . . This enables, in particular, galvanic isolation of the data mesh 20 from the power mesh 22 and the auxiliary voltage mesh 24.”).) The applicant confirmed this disclaimer during prosecution by distinguishing the prior art on the basis that the claimed energy storing components use a communication interface to unambiguously identify and authenticate themselves on a supply network as part of “autonomously” determining whether to connect to the supply network. *See Applicant Arguments/Remands Made in Amendment of 3/5/2018* (Ex. U at 9-10) (“a communication interface of each energy storing component interacts with a switch such that

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electrical power is to be supplied only after a release is made, the release being subject to an **authentication** and **identification** (via the communication interface) of the compatibility of said energy storing component to the present supply network”). Thus, a POSA would not identify the above paragraph as structure for the **claimed** communication interface, which is consistently described as being implemented using an RFID transponder throughout the specification.

105. I am also informed that Unicorn has identified the following paragraph as structure corresponding to the claimed communication interface:

The communication interface 34 can be embodied in a wired or wireless fashion. In particular, capacitive, inductive or optical transmission can also take place via the communication interface 34. In particular, however, it is provided that the communication interface 34 communicates with adjacent supply network components 10 by means of RFID techniques. This enables, in particular, galvanic isolation of the data mesh 20 from the power mesh 22 and the auxiliary voltage mesh 24.

Unicorn’s P.R. 4-2 Disclosure (Ex. I at 16 (quoting ’869 patent at 15:14-23)).

106. In my opinion, a POSA would not recognize the abovementioned reference to a “wired” embodiment as structure associated with the claimed communication interface. In addition, the sentence that describes “capacitive, inductive or optical transmission” that “can also take place via the communication interface 34” merely describes different types of communication, rather than disclosing any structure capable of actually performing such communication. I am informed by counsel that structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. Neither the reference to a “wired” embodiment or the description of “capacitive, inductive or optical transmission” describes any structure that could perform the claimed function of exchanging information with a further energy storing component capable of understanding the information. The above excerpt makes it clear that the “particular” structure for

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“communicat[ing] with adjacent supply network components” is accomplished via “RFID.” Thus, a POSA would only recognize an RFID transponder as the structure corresponding to the claimed function associated with the “communication interface,” since it is the only structure disclosed by which “all required technical data and physical parameters can be exchanged electronically between supply network components.” (’869 patent at 9:8-11.)

3. Alternative construction of “communication interface”

107. If it were determined that “communication interface” is not expressed as a “means or step for performing a specified function without the recital of the structure, material, or acts in support thereof,” and if “communication interface” is not held to be indefinite, then I agree with Tesla that the term should be construed to mean “a point at which two energy storing components interact for exchanging understandable information.” To the extent the phrase “communication interface” could be understood to convey sufficient structural meaning to a POSA, a POSA would understand the phrase to mean “a point at which two energy storing components interact for exchanging understandable information,” in view of the intrinsic record and the plain and ordinary meaning of the phrase.

108. I am informed that Unicorn has proposed to construe this term as “component(s) that electronically exchanges information.” In my opinion, Unicorn’s proposed construction is flawed for a number of reasons. First, every communication interface shown and described in the specification is depicted as being adjacent to a communication interface of another energy storing component in order to facilitate communications with the adjacent energy storing component. (See, e.g., ’869 patent at Figs. 1, 3, 9, 10.) For example, Figure 10 shows communication interfaces as white squares with arrows pointing to adjacent energy storing components with which they communicate. Thus, I agree with Tesla that this term should be construed to mean “a point at which **two energy storing components** interact for exchanging understandable information.”

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109. Second, I agree with Tesla that a communication interface is a “point,” rather than an undefined collection of one or more “component(s),” as suggested by Unicorn. In my opinion, Unicorn’s proposed construction would render the term “communication interface” indefinite, because a POSA would not know which “component(s)” form part of a communication interface—for example, components used to provide power to the communication interface could theoretically be included as part of the claimed “communication interface” under Unicorn’s construction, but a POSA would not know whether such components would fall within the allegedly infringing “component(s)” under Unicorn’s definition. Tesla’s proposed construction makes it clear that an interface, as understood in the art, is a “point.” Unicorn’s own cited dictionary definitions make it clear that an interface is a “point.” UNICORN_00003229 at UNICORN_00003247 (Ex. J) (“1. a point at which one computer system ends and ether begins”); UNICORN_00003280 at UNICORN_00003283 (Ex. Z) (“[a] point or device at which a. transition between media, power levels, nodes of operation, etc., is made”).

110. Finally, I disagree with Unicorn’s proposed construction to the extent that it implies that the claimed communication interface covers the exchange of information that is not understandable between energy storing components. The claim language recites that the claimed communication interface is “for communicating **with** a further energy storing component.” A POSA would understand the phrase “communicating with” to mean that the two energy storing components can actually understand the information that is communicated between the components. Collins Dictionary Online, definition of “communicate,” <https://www.collinsdictionary.com/us/dictionary/english/communicate> (last visited 5/31/2021) (Ex. HH) (“If one person communicates with another, they successfully make each other aware of their feelings and ideas.”). This definition comports with the fact that energy storing components

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must understand the information coming from nearby energy storing components to safely and autonomously connect to the distributed network of energy storing components, as discussed above.

E. “transport interface”

1. “transport interface” does not have any definite structural meaning in the art

111. Each of the asserted claims recites a “transport interface for transporting the electrical energy to the further energy storing component.” I understand that Tesla has proposed that this term be construed as expressing “a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof.” *See* Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 13). A POSA would understand that the phrase “transport interface” does not refer to any recognizable “structure, material or acts” for performing the function of “transporting the electrical energy to the further energy storing component” and therefore would have looked to the specification for a definition of such “structure, material or acts.”

112. The phrase “transport interface” by itself does not have any definite structural meaning. The term has no reasonably understood meaning in the art as a name for structure, and it would not bring to mind any particular or specific structure to a POSA. One dictionary defines “transport” as “[t]o convey as a whole from one storage device to another in a digital computer,” which has nothing to do with “transporting the electrical energy to the further **energy storing component**,” given that a POSA would not understand a “digital computer” to be an energy storing component in this context. McGraw-Hill Dictionary of Electrical and Computer Engineering, 2004, definition of “transport” (Ex. T at 598). Unicorn’s cited dictionary definitions of “transport” likewise have nothing to do with “transporting the electrical energy to the further energy storing

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component.” UNICORN_00003229 at UNICORN_00003252 (Ex. J) (“*noun* 1. a system of moving things from one place to another . . . 2. the activity of moving something from one place to another . . . *verb* to move something from one place to another”); UNICORN_00003256 at UNICORN_00003271 (Ex. W) (“To convey as a whole from one storage device to another in a digital computer”).

113. As I explained above in connection with the “communication interface” term, dictionary definitions show that the word “interface” could be interpreted in many different ways. *See, e.g.*, Comprehensive Dictionary of Electrical Engineering, 1999, definition of “interface” (Ex. X at 335) (“the set of rules specified for communicating with a defined entity”); Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “interface” (Ex. E at 382) (“1. The point or points where two entities meet. For instance, the connection between devices exchanging information 2. A device which serves to connect a computer to peripheral devices or a network. . . . 3. Any interface (1) used in association with a computer, such as those between programs, between hardware and software, between hardware and a user, or between software and a user.”); McGraw-Hill Dictionary of Electrical and Computer Engineering, 2004, definition of “interface” (Ex. T at 300) (“1. Some form of electronic device that enables one piece of gear to communicate with or control another. 2. A device linking two otherwise incompatible devices, such as an editing terminal of one manufacturer to typesetter of another.”); Newton’s Telecom Dictionary, 26th Edition, 2011, definition of “interface” (Ex. F at 618) (“1. Noun. A mechanical or electrical link connecting two or more pieces of equipment together. 2. Noun. A shared boundary. A physical point of demarcation between two devices where the electrical signals, connectors, timing and handshaking are defined. The procedures, codes and protocols that enable two entities to interact for a meaningful exchange of information.”); Merriam-Webster Online Dictionary,

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definition of “interface” (<https://www.merriam-webster.com/dictionary/interface> (last visited May 10, 2021)) (Ex. Y) (“the place at which independent and often unrelated systems meet and act on or communicate with each other. b: the means by which interaction or communication is achieved at an interface. : a surface forming a common boundary of two bodies, spaces, or phases.”).

114. Unicorn’s dictionary definitions of “interface” likewise fail to provide any definitive meaning of the term. *See* UNICORN_00003229 at UNICORN_00003247 (Ex. J) (“1. a point at which one computer system ends and ether begins 2. a circuit, device or port that allows two or more incompatible units to be linked together in a standard communication system, allowing data to be transferred between them 3. a section of a program which allows transmission of data to another program”); UNICORN_00003256 at UNICORN_00003266 (Ex. W) (“1. Some form of electronic device that enables one piece of gear to communicate with or control another. 2. A device linking two otherwise incompatible devices, such as an editing terminal of one manufacturer to typesetter of another. . . . A shared boundary; it may be a piece of hardware used between two pieces of equipment, a portion of computer storage accessed by two or more programs, or a surface that forms the boundary between two types of materials.”); UNICORN_00003280 at UNICORN_00003283 (Ex. Z) (providing 15 very different definitions of “interface,” including: “[a] point or device at which a. transition between media, power levels, nodes of operation, etc., is made,” “[t]he means of connection between two logic elements, often elements that belong to two different ‘families,’” “[t]he hardware or software required to be able to communicate with, sense, or control external equipment,” and “[a] common or shared boundary between two or more instruments, devices, or systems, which enables exchange of information, among interconnecting units or systems that may not be directly compatible”).

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115. In view of the above definitions for “interface,” a transport interface could consist of a wide variety of things, including a set of rules, various types of hardware, software, a shared boundary, or a transition point. In sum, there is no accepted understanding of “interface” that could bring to mind any particular structure to a POSA encountering the phrase “transport interface.”

116. A POSA would have no idea whether the phrase “transport interface” includes some subset, all, or none of the above concepts, particularly given that the transport interface is recited to be part of a “contact unit for contacting a further energy storing component,” which would only further confuse a POSA as to what “transport interface” refers to. Although the patent states that “[t]he transport interface . . . can be embodied in a wired fashion, in principle,” it provides no example of how a “wired” embodiment of a transport interface could be implemented into a “contact unit for contacting a further energy storing component.” Given that the transport interface is part of a “contact unit for contacting a further energy storing component,” a POSA would understand that “transport interface” is a phrase coined to refer to a specific structure that is unique to the ’869 patent’s alleged invention, given the inherent confusion associated with trying to integrate a transport interface—particularly a “wired” transport interface—into a contact unit designed to physically touch an adjacent energy storing component to establish an electrical junction.

117. Because the phrase “transport interface” has no definition in the art, a POSA would understand that “transport interface” is a generic placeholder, a nonce term, for a nonspecific object or structure—similar to words like “mechanism,” “device,” or “means.” The Written Opinion of the International Search Authority for PCT/EP2013/054194, included in the October 30, 2014 IDS in the ’869 patent’s file history (Ex. K), confirmed that the term “transport interface” is “vague

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and unclear and leave[s] the reader uncertain as to the meaning of the technical feature in question.” *Id.* at “Clarity” finding 1.3. “As a result, the subject matter of said claim is not clearly defined” and “a person skilled in the art is unable to clearly identify the functional relationship among these features.” *Id.*

118. The term “transport interface” could be interpreted in any number of ways to include any number of different structures and/or components. This is demonstrated by Unicorn’s arbitrary identification of multiple Powerwall terminals as implementing a single “transport interface”:

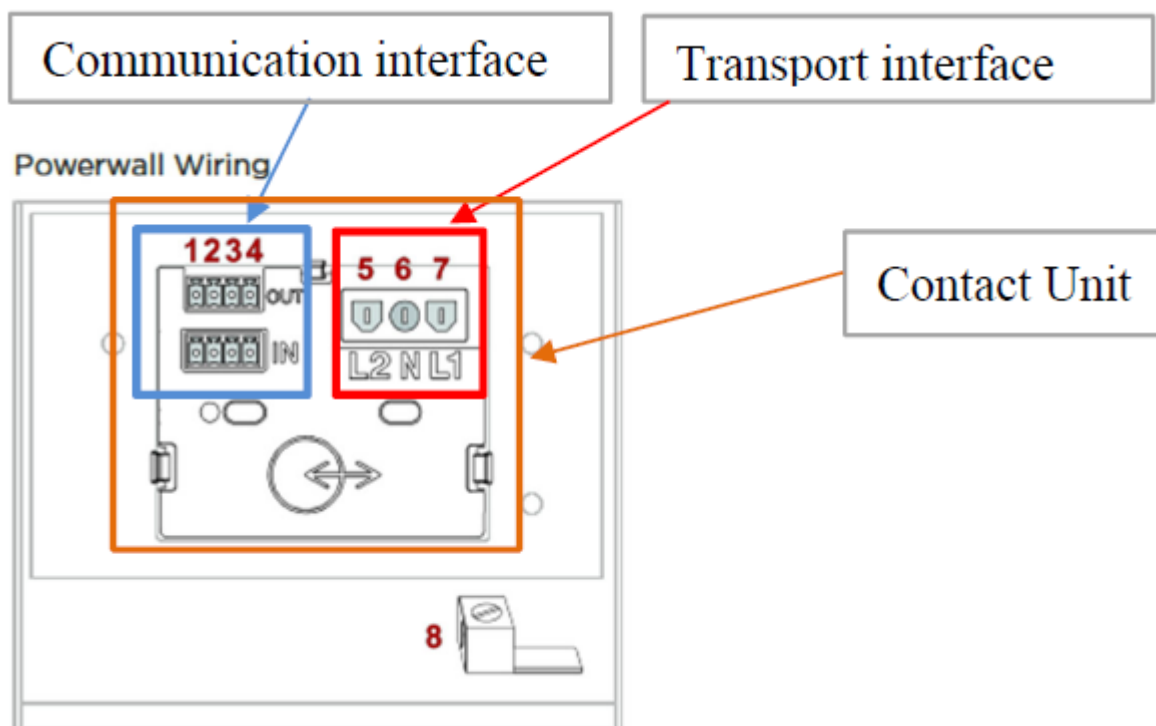


Table 4. Powerwall Wiring: Power

Powerwall Terminal	Recommended Wire Color	Wire Gauge
5 L2 (Line 2) - to Neutral	Red	10- 8 AWG (6 - 10 mm ²)
6 N (Neutral)	White	10 - 8 AWG (6 - 10 mm ²)
7 L1 (Line 1)	Black	10 - 8 AWG (6 - 10 mm ²)
8 Chassis Ground Lug	Green / Yellow	10 - 8 AWG (6 - 10 mm ²)

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Plaintiff's Disclosure of Asserted Claims and Infringement Contentions (Ex. O) at 47 (excerpting and annotating UNICORN_00002971 at UNICORN_00003018 (Ex. P)). A POSA would not understand, merely from the term "transport interface," whether the phrase refers to a single terminal, multiple terminals, or some combination of the terminals. In particular, the neutral terminal labeled "6" does not necessarily transport electrical energy to a further energy storing component, and it would have thus been unclear to a POSA whether it implements a "transport interface" (either in whole or in part). Unicorn simply drew a box around a set of terminals and called them a "transport interface." This arbitrary box-drawing exercise demonstrates why a POSA would understand "transport interface" to be a meaningless placeholder for structure that is only identifiable in the specification.

2. Function and structure associated with "transport interface"

119. I understand that Tesla identified the function associated with "transport interface for transporting the electrical energy to the further energy storing component" as "transmitting the electrical energy to the further energy storing component." Tesla's P.R. 4-2 Proposed Claim Constructions (Ex. B at 13). I agree with Tesla that a POSA would have understood this to be the function associated with this term, given that every transport interface referenced in the specification is described as "transmitting" electrical energy to a further energy storing component. (*See* '869 patent at 7:46-48 ("In one refinement of the supply network component, it can be provided that the transport interface **transmits** the electrical energy in the form of a direct current."); *id.* at 9:29-31 ("If appropriate, **transmission** of the network medium via the transport interface can then be interrupted."); *id.* at 9:61-63 ("In the case where the network medium is electrical energy, for example, this enables the network medium to be **transmitted** safely via the transport interface."); *id.* at 10:11-18 ("This can contribute to enabling safe **transmission** via the transport interface with short circuits being avoided."); *id.* at 14:51-54 ("Furthermore, each of the

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contact units 12, 14 has a transport interface 36, which provides an interface for **transmitting** the network medium, electrical energy in the embodiment explained, in the power mesh 22.”); *id.* at 16:7-15 (“The spring contacts 51, 53 form the transport interface 26 of the second contact unit 14. In this case, the spring contact 49 and also both the spring contact 51 and the spring contact 53 can in each case be designed as spring contact groups, wherein a spring contact group has a plurality of individual spring contacts. The power that can then be **transmitted** via a spring contact group can be increased in this way.”).) I am informed by counsel that Unicorn did not identify any function associated with “transport interface” (or any other claim term). I reserve the right to supplement this declaration if Unicorn identifies a function that is different from Tesla’s.

120. Tesla argues that the structure corresponding to the term “transport interface” is “a rotationally symmetrical structure designed in a coaxial fashion with respect to an auxiliary voltage interface, consisting of either spring contact pins or two ring-shaped, coaxial contacts—one for ground and potentially comprising insulating webs, as described in the specification, and equivalents thereof.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 13-14). A POSA would have identified this structure as being associated with a “transport interface,” given that it reflects the only examples of transport interfaces for transporting electrical energy to further energy storing components provided in the specification. (’869 patent at 9:51-10:21, 15:41-16:15).

121. I understand that Unicorn has identified Figs. 1, 2, 3, 7, 8, 9, 10 and related sections of the specification as structure corresponding to a “transport interface.” *See* Unicorn’s P.R. 4-2 Disclosure (Ex. I at 17-18). In my opinion, Unicorn’s identification of structure associated with the “transport interface” term is flawed. First, Unicorn identifies the following paragraph from the ’869 patent, which a POSA would not associate as disclosing structure for the claimed “transport interface.”

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Each of the contact units 12, 14 has a communication interface 34, which provides an interface for the data mesh 20 to a further contact unit. Furthermore, each of the contact units 12, 14 has a transport interface 36, which provides an interface for transmitting the network medium, electrical energy in the embodiment explained, in the power mesh 22.

(*Id.* at 17). This paragraph references the high-level, block-diagram descriptions of transport interfaces (*see, e.g.*, Fig. 1) that do not disclose structure for transporting electrical energy to a further energy storing component. I have been informed by counsel that structural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations. The block-diagram depictions of transport interfaces (for example, in Figure 1) do not actually perform the recited function of a transport interface. Tesla's proposed structure is the only structure that actually performs the function.

122. I am also informed that Unicorn has identified the following paragraph as structure corresponding to the claimed transport interface:

The transport interface 36 and the auxiliary voltage interface 38 can be embodied in a wired fashion, in principle. The communication interface 34 can be embodied in a wired or wireless fashion. In particular, capacitive, inductive or optical transmission can also take place via the communication interface 34. In particular, however, it is provided that the communication interface 34 communicates with adjacent supply network components 10 by means of RFID techniques. This enables, in particular, galvanic isolation of the data mesh 20 from the power mesh 22 and the auxiliary voltage mesh 24.

Unicorn's P.R. 4-2 Disclosure (Ex. I at 17-18) (quoting '869 patent at 15:13-23).

123. Most of this excerpt discusses the communication interface, not the transport interface, and is therefore irrelevant to the transport interface term. The one sentence that references the transport interface baldly states that it "can be embodied in a wired fashion, in principle." In my opinion, a POSA would not recognize this reference to a "wired" embodiment as structure associated with the claimed transport interface. I am informed by counsel that structure disclosed in the specification is corresponding structure only if the specification or prosecution

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history clearly links or associates that structure to the function recited in the claim. The foregoing reference to a “wired” embodiment does not describe any structure that could perform the claimed function of transmitting electrical energy to a further energy storing component. A bare wire obviously has no capacity to generate, gate, or control electrical energy by itself and, therefore, could not function as a transport interface for transmitting electrical energy.

124. I am also informed that Unicorn has identified the following paragraph as structure corresponding to the claimed transport interface:

Furthermore, both in the case of the first contact unit 12 and in the case of the second contact unit 14 it can be provided that they are provided with cables in order, besides the standard interfaces 34, 36, 38 illustrated in FIGS. 7 and 8, to provide a connection to other functional groups, for example energy sources or energy stores according to other standards, for instance automobile batteries.

Unicorn’s P.R. 4-2 Disclosure (Ex. I at 18) (quoting ’869 patent at 17:59-65). This excerpt does not even reference the term “transport interface” and thus appears to have nothing to do with a transport interface. Nothing in this excerpt discloses any actual structure for transmitting electrical energy to an energy storing component. In addition, for the reasons I discuss above in connection with the “contact unit” term, a POSA would not recognize this paragraph as describing structure associated with the claimed contact unit or its constituent “transport interface.”

3. Alternative construction of “transport interface”

125. If it were determined that “transport interface” is not expressed as a “means or step for performing a specified function without the recital of the structure, material, or acts in support thereof,” and if “transport interface” is not held to be indefinite, then I agree with Tesla that the term should be construed to mean “a point at which two energy storing components contact for transmitting electrical energy.” To the extent the phrase “transport interface” could be understood to convey sufficient structural meaning to a POSA, a POSA would understand the phrase to mean

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“a point at which two energy storing components contact for transmitting electrical energy,” in view of the intrinsic record and the plain and ordinary meaning of the phrase.

126. I am informed that Unicorn has proposed to construe this term as “electrical contact.” In my opinion, Unicorn’s proposed construction is flawed to the extent it does not require the transport interface to transmit electrical energy. As I discussed above, every embodiment of a transport interface in the specification transmits electrical energy to an energy storing component. In addition, every transport interface shown and described in the specification is depicted as being connectable to a transport interface of another energy storing component in order to facilitate transmission of electrical energy between energy storing components. (*See, e.g.*, ’869 patent at Figs. 1, 2, 3, 7, 8, 9, 10.) For example, Figure 10 shows transport interfaces as white circles with arrows pointing to adjacent energy storing components to which they transmit electrical energy. Thus, I agree with Tesla that this term should be construed to mean “a point at which **two energy storing components** contact for transmitting electrical energy.”

127. I also agree with Tesla that a transport interface is a “point.” An interface, as understood in the art, is a “point.” Unicorn’s own cited dictionary definitions make it clear that an interface is a “point.” UNICORN_00003229 at UNICORN_00003247 (Ex. J) (“1. a point at which one computer system ends and ether begins”); UNICORN_00003280 at UNICORN_00003283 (Ex. Z) (“[a] point or device at which a. transition between media, power levels, nodes of operation, etc., is made”).

F. “auxiliary voltage interface”

1. “auxiliary voltage interface” does not have any definite structural meaning in the art

128. Claim 3 recites “an auxiliary voltage interface for transmitting an auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy.” I understand

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that Tesla has proposed that this term be construed as expressing “a means or step for performing a specified function without the recital of the structure, material, or acts in support thereof.” *See* Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 25). A POSA would understand that the phrase “auxiliary voltage interface” does not refer to any recognizable “structure, material or acts” for performing the function of “transmitting an auxiliary voltage for supplying at least one of [a] contact unit or [a] gateway with electrical energy.”

129. The phrase “auxiliary voltage interface” by itself does not have any definite structural meaning. The term has no reasonably understood meaning in the art as a name for structure, and it would not bring to mind any particular or specific structure to a POSA. One dictionary defines “auxiliary power” as “[a]n alternate source of electric power, serving as backup for the primary power at the station main bus or prescribed sub-bus.” Newton’s Telecom Dictionary, 26th Edition, 2011, definition of “auxiliary power” (Ex. F at 163). Although this definition suggests that auxiliary power refers to an alternate source of power, it does not provide a definition of any particular “interface” for providing such power. Unicorn’s dictionary definitions of “auxiliary” likewise provide no clues as to what kind of “interface” might be associated with an “auxiliary voltage interface.” UNICORN_00003229 at UNICORN_00003231 (Ex. J) (“referring to a secondary system that is used when necessary”); UNICORN_00003274 at UNICORN_00003276 (Ex. CC) (“providing supplementary or additional help and support”).

130. As discussed above in connection with the “communication interface” and “transport interface” terms, dictionary definitions show that the word “interface” could be interpreted in many different ways. *See, e.g.*, Comprehensive Dictionary of Electrical Engineering, 1999, definition of “interface” (Ex. X at 335) (“the set of rules specified for communicating with a defined entity”); Wiley Electrical and Electronics Engineering Dictionary,

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2004, definition of “interface” (Ex. E at 382) (“1. The point or points where two entities meet. For instance, the connection between devices exchanging information 2. A device which serves to connect a computer to peripheral devices or a network. . . . 3. Any interface (1) used in association with a computer, such as those between programs, between hardware and software, between hardware and a user, or between software and a user.”); McGraw-Hill Dictionary of Electrical and Computer Engineering, 2004, definition of “interface” (Ex. T at 300) (“1. Some form of electronic device that enables one piece of gear to communicate with or control another. 2. A device linking two otherwise incompatible devices, such as an editing terminal of one manufacturer to typesetter of another.”); Newton’s Telecom Dictionary, 26th Edition, 2011, definition of “interface” (Ex. F at 618) (“1. Noun. A mechanical or electrical link connecting two or more pieces of equipment together. 2. Noun. A shared boundary. A physical point of demarcation between two devices where the electrical signals, connectors, timing and handshaking are defined. The procedures, codes and protocols that enable two entities to interact for a meaningful exchange of information.”); Merriam-Webster Online Dictionary, definition of “interface” (<https://www.merriam-webster.com/dictionary/interface> (last visited May 10, 2021)) (Ex. Y) (“the place at which independent and often unrelated systems meet and act on or communicate with each other. b: the means by which interaction or communication is achieved at an interface. : a surface forming a common boundary of two bodies, spaces, or phases.”).

131. Unicorn’s dictionary definitions of “interface” likewise fail to provide any definitive meaning of the term. *See* UNICORN_00003229 at UNICORN_00003247 (Ex. J) (“1. a point at which one computer system ends and ether begins 2. a circuit, device or port that allows two or more incompatible units to be linked together in a standard communication system, allowing data to be transferred between them 3. a section of a program which allows transmission

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of data to another program”); UNICORN_00003256 at UNICORN_00003266 (Ex. W) (“1. Some form of electronic device that enables one piece of gear to communicate with or control another. 2. A device linking two otherwise incompatible devices, such as an editing terminal of one manufacturer to typesetter of another. . . . A shared boundary; it may be a piece of hardware used between two pieces of equipment, a portion of computer storage accessed by two or more programs, or a surface that forms the boundary between two types of materials.”); UNICORN_00003280 at UNICORN_00003283 (Ex. Z) (providing 15 very different definitions of “interface,” including: “[a] point or device at which a. transition between media, power levels, nodes of operation, etc., is made,” “[t]he means of connection between two logic elements, often elements that belong to two different ‘families,’” [t]he hardware or software required to be able to communicate with, sense, or control external equipment,” and “[a] common or shared boundary between two or more instruments, devices, or systems, which enables exchange of information, among interconnecting units or systems that may not be directly compatible”).

132. In view of the above definitions for “interface,” an auxiliary voltage interface could consist of a wide variety of things, including a set of rules, various types of hardware, software, a shared boundary, or a transition point. In sum, there is no accepted understanding of “interface” that could bring to mind any particular structure to a POSA encountering the phrase “auxiliary voltage interface.”

133. A POSA would have no idea whether the phrase “auxiliary voltage interface” includes some subset, all, or none of the above concepts, particularly given that the auxiliary voltage interface is recited to be part of a “contact unit for contacting a further energy storing component,” which would only further confuse a POSA as to what “auxiliary voltage interface” refers to. The only exemplary auxiliary voltage interfaces disclosed in the patent are a “spring

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contact” and a “mating contact.” (*See, e.g.*, ’869 patent at 16:3-5, 17:36-43 (“A **spring contact** 49 for the auxiliary voltage is formed centrally, the **spring contact** forming the auxiliary voltage interface 38. . . . FIG. 7 shows a detailed view of the first contact unit 12. . . . The first contact unit 12 is designed as a ‘socket.’ Accordingly, it has a **mating contact** 70, which forms the auxiliary voltage interface 38 in the first contact unit 12. Said contact can serve for contacting a contact unit designed as a ‘plug,’ such as the second contact unit 14, for example.”)). Another part of the specification suggests that the “auxiliary voltage interface . . . can be embodied in a wired fashion.” (*Id.* at 15:13-14). Given that the auxiliary voltage interface is part of a “contact unit for contacting a further energy storing component,” a POSA would understand that “auxiliary voltage interface” is a phrase coined to refer to a specific structure that is unique to the ’869 patent’s alleged invention, given the inherent confusion associated with trying to integrate an auxiliary voltage interface—particularly a “wired” auxiliary voltage interface—into a contact unit designed to physically touch an adjacent energy storing component to establish an electrical junction.

134. Because the phrase “auxiliary voltage interface” has no definition in the art, a POSA would understand that “auxiliary voltage interface” is a generic placeholder, a nonce term, for a nonspecific object or structure—similar to words like “mechanism,” “device,” or “means.” The term “auxiliary voltage interface” could be interpreted in any number of ways to include any number of different structures and/or components. This is demonstrated by Unicorn’s arbitrary identification of an auxiliary voltage interface that, according to Unicorn, may be part of a “communication interface”:

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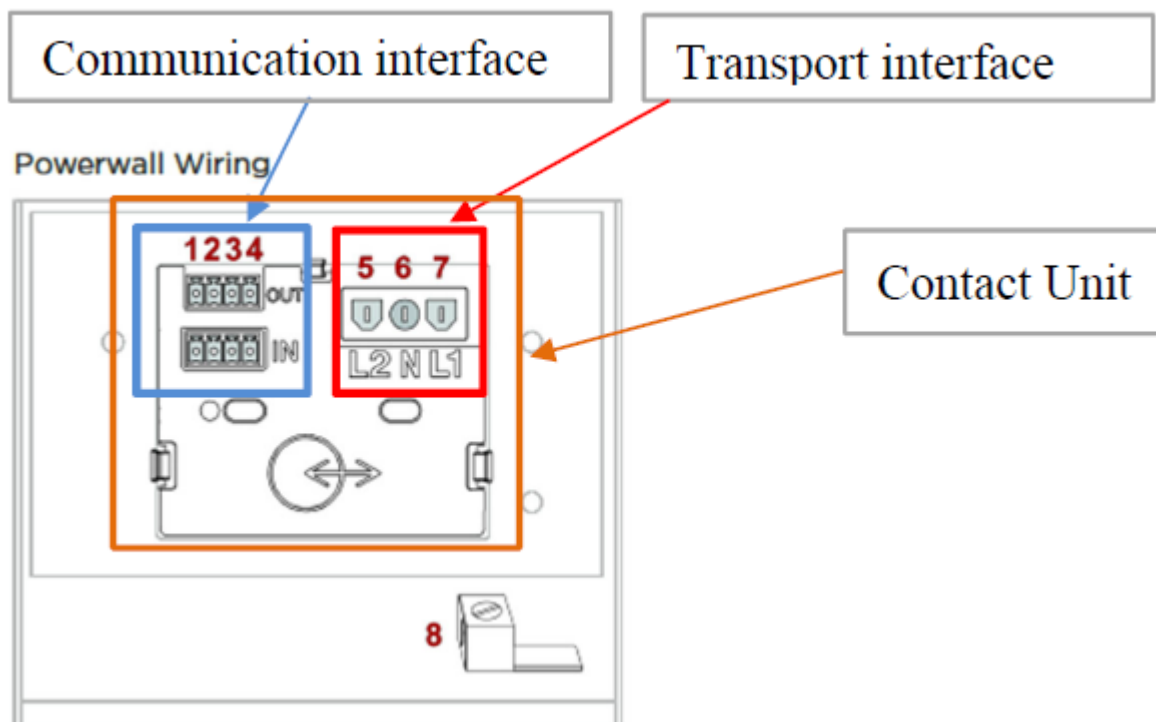


Table 3. Powerwall Wiring: Communication

Powerwall Terminal	Recommended Wire Color	Wire Gauge
1 12V + (Logic +)	Brown	18 - 16 AWG (0.8 - 1.5 mm ²)
2 GND (Earth)	White	18 - 16 AWG (0.8 - 1.5 mm ²)
3 CN + (CAN HI)	Blue	24 - 16 AWG (0.2 - 1.5 mm ²)
4 CN - (CAN LO)	Yellow	24 - 16 AWG (0.2 - 1.5 mm ²)
Cable Shield/Drain Wire	(Terminate at Powerwall chassis ground lug only)	

Plaintiff's Disclosure of Asserted Claims and Infringement Contentions (Ex. O at 47) (excerpting and annotating UNICORN_00002971 at UNICORN_00003018 (Ex. P)). Specifically, Unicorn identifies the 12V terminal as allegedly implementing an "auxiliary voltage interface." (Ex. O at 56-58.) Claim 3 and the '869 patent's specification defines an auxiliary voltage interface as a feature that is separate from, and additional to, the recited communication interface. (*See, e.g.*, '869 patent at 14:11-12 (describing the auxiliary voltage interface as a separate, optional feature that "need not necessarily be present"); *see also id.* at 14:55-59, 16:1-5). Unicorn simply drew a

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box around a set of terminals, one of which it alleges is an “auxiliary voltage interface,” and called it a “communication interface,” despite the fact that the specification refers to the auxiliary voltage interface as needing to be separate from the communication interface to achieve galvanic isolation. (’869 patent at 15:18-23 (“In particular, however, it is provided that the communication interface 34 communicates with adjacent supply network components 10 by means of RFID techniques. This enables, in particular, **galvanic isolation** of the data mesh 20 from the power mesh 22 and the auxiliary voltage mesh 24.”)). Unicorn’s arbitrary box-drawing exercise, which runs contrary to the specification, demonstrates why a POSA would understand “auxiliary voltage interface” to be a meaningless placeholder for structure that is only identifiable in the specification.

2. Function and structure associated with “auxiliary voltage interface”

135. I understand that Tesla identified the function associated with “auxiliary voltage interface for transmitting an auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy” as “transmitting auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 25). I agree with Tesla that a POSA would have understood this to be the function associated with this term, given that every auxiliary voltage interface referenced in the specification is described as “transmitting” electrical energy. (See ’869 patent at 7:38-42 (“In one refinement of the supply network component, it can be provided that the at least one contact unit furthermore has an auxiliary voltage interface for **transmitting** an auxiliary voltage for supplying the contact unit and/or the coupling unit with electrical energy.”); *id.* at 14:55-59 (“Furthermore, in the embodiment illustrated, each contact unit 12, 14 also has an auxiliary voltage interface 38, which serves for **transmitting** the auxiliary voltage within the auxiliary voltage mesh 24 to adjacent supply network components.”)). I am informed by counsel that Unicorn did not identify

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any function associated with “auxiliary voltage interface” (or any other claim term). I reserve the right to supplement this declaration if Unicorn identifies a function that is different from Tesla’s.

136. Tesla argues that the structure corresponding to the term “auxiliary voltage interface” is “a rotationally symmetrical structure designed in a coaxial fashion with respect to the transport interface in the form of either a centrally-formed spring contact at 12 V and up to 2 A or a mating contact.” Tesla’s P.R. 4-2 Proposed Claim Constructions (Ex. B at 25). A POSA would have identified this structure as being associated with an “auxiliary voltage interface,” given that it reflects the only examples of auxiliary voltage interfaces for transmitting auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy. (’869 patent at 10:19-21, 16:2-5, 17:36-43.)

137. I understand that Unicorn has identified Figs. 1, 2, 7, 8, and related sections of the specification as structure corresponding to an “auxiliary voltage interface.” *See* Unicorn’s P.R. 4-2 Disclosure (Ex. I at 18-22). In my opinion, Unicorn’s identification of structure associated with the “auxiliary voltage interface” term is flawed. First, Unicorn identifies certain paragraphs associated with Figure 1 as disclosing structure for an auxiliary voltage interface. *Id.* at 19 (quoting ’869 patent at 14:8-22, 14:49-59); *id.* at 21-22 (quoting 17:52-18:25). These paragraphs comprise high-level, block-diagram descriptions of auxiliary voltage interfaces (*see, e.g.*, Fig. 1) that do not disclose structure for transmitting auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy. I have been informed by counsel that structural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations. The block-diagram depictions of auxiliary voltage interfaces (for example, in Figure 1) do not actually perform the recited function of an auxiliary voltage interface. Tesla’s proposed structure is the only structure that actually performs the function.

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138. I am also informed that Unicorn has identified the following as structure corresponding to the claimed auxiliary voltage interface: “The transport interface 36 and the auxiliary voltage interface 38 can be embodied in a wired fashion, in principle. The communication interface 34 can be embodied in a wired or wireless fashion.” Unicorn’s P.R. 4-2 Disclosure (Ex. I at 19-20) (quoting ’869 patent at 15:12-16). The second quoted sentence refers to the communication interface and is irrelevant to the auxiliary voltage interface.

139. The sentence that references an auxiliary voltage interface baldly states that it “can be embodied in a wired fashion, in principle.” In my opinion, a POSA would not recognize this reference to a “wired” embodiment as structure associated with the claimed auxiliary voltage interface. I am informed by counsel that structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. The foregoing reference to a “wired” embodiment does not describe any structure that could perform the claimed function of transmitting auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy. A bare wire obviously has no capacity to generate, gate, or control electrical energy by itself and, therefore, could not function as an auxiliary voltage interface for transmitting auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy.

140. I am also informed that Unicorn has identified column 16, lines 15-36 as structure corresponding to an auxiliary voltage interface. This excerpt, however, says nothing about an auxiliary voltage interface and does not appear to have anything to do with an auxiliary voltage interface. A POSA would not consider it corresponding structure for the claimed auxiliary voltage interface.

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141. I am also informed that Unicorn has identified the following paragraph as structure corresponding to the claimed auxiliary voltage interface:

Furthermore, both in the case of the first contact unit 12 and in the case of the second contact unit 14 it can be provided that they are provided with cables in order, besides the standard interfaces 34, 36, 38 illustrated in FIGS. 7 and 8, to provide a connection to other functional groups, for example energy sources or energy stores according to other standards, for instance automobile batteries.

Unicorn's P.R. 4-2 Disclosure (Ex. I at 21) (quoting '869 patent at 17:59-65.) This excerpt does not even reference the term "auxiliary voltage interface" and thus appears to have nothing to do with an auxiliary voltage interface. Nothing in this excerpt discloses any actual structure for transmitting auxiliary voltage for supplying at least one of the contact unit or the gateway with electrical energy. In addition, for the reasons I discuss above in connection with the "contact unit" term, a POSA would not recognize this paragraph as describing structure associated with the claimed contact unit or its constituent "auxiliary voltage interface."

3. Alternative construction of "auxiliary voltage interface"

142. If it were determined that "auxiliary voltage interface" is not expressed as a "means or step for performing a specified function without the recital of the structure, material, or acts in support thereof," and if "auxiliary voltage interface" is not held to be indefinite, then I agree with Tesla that the term should be construed to mean "a point at which two energy storing components meet for transmitting auxiliary electrical energy with each other." To the extent the phrase "auxiliary voltage interface" could be understood to convey sufficient structural meaning to a POSA, a POSA would understand the phrase to mean "a point at which two energy storing components meet for transmitting auxiliary electrical energy with each other," in view of the intrinsic record and the plain and ordinary meaning of the phrase.

143. I am informed that Unicorn has proposed to construe this term as "electrical contact for transmitting auxiliary electrical energy." Every auxiliary voltage interface shown and

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described in the specification is depicted as being connectable to another auxiliary voltage interface of another energy storing component in order to facilitate transmission of auxiliary electrical energy between energy storing components. (*See, e.g.*, '869 patent at Figs. 1, 2, 7, 8, 10.) For example, Figure 10 shows auxiliary voltage interfaces as white triangles with arrows pointing to adjacent energy storing components to which they transmit auxiliary electrical energy. Thus, I agree with Tesla that this term should be construed to mean “a point at which **two energy storing components** meet for transmitting auxiliary electrical energy with each other.”

144. I also agree with Tesla that an auxiliary voltage interface is a “point.” An interface, as understood in the art, is a “point.” Unicorn’s own cited dictionary definitions make it clear that an interface is a “point.” UNICORN_00003229 at UNICORN_00003247 (Ex. J) (“1. a point at which one computer system ends and ether begins”); UNICORN_00003280 at UNICORN_00003283 (Ex. Z) (“[a] point or device at which a. transition between media, power levels, nodes of operation, etc., is made”).

G. “energy storing component”

145. I understand that Tesla has argued that this term is indefinite because it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. I agree with Tesla that a POSA would not understand this term with reasonable certainty in view of the patent and the file history. A POSA would not recognize the term “energy storing component” as a term with a recognized definition within the art, and the term “energy storing component” is never used anywhere within the specification of the '869 patent. Rather, the patent applicant amended the claims of the '869 patent to replace most, but not all, references to the coined term “supply network component[s]” with the additional coined term “energy storing component[s].” *See* '869 File History, Applicant’s Amendment of March 5, 2018 (Ex. U at 2-7). The applicant provided no explanation for the selective amendments that replaced “supply network

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component” with “energy storing component” in some instances but not others. Specifically, claim 27 still includes references to both a “supply network component” and “energy storing component,” implying that the two phrases have different meanings and connotations. The examiner subsequently allowed the claims to issue without comment on the inconsistent amendment to the claims. *See* ’869 File History, Notice of Allowance of March 26, 2018 (Ex. DD).

146. In view of the foregoing, a POSA would not understand what “energy storing component” refers to or how it is distinct and delineated from the “supply network component,” the “supply network,” or the “energy store”—all of which are additional terms that must be distinct from the “energy supply component.” Like these other terms in the asserted claims, “energy storing component” appears to refer to any arbitrarily designated set of structures, at least one of which performs energy storage. This is shown in claims 1 and 27, which circularly recite an “energy store” as a subcomponent of an “energy storing component.” But the “energy store” could also be considered an energy storing component.

147. Outside of the context of the specifically recited elements in the claims (i.e., a “contact unit,” a “gateway,” and a “switch,” in addition to an “energy store”), a POSA would have no idea what else could or should be included with the scope of an “energy storing component.” To further aggravate the indefiniteness issue, the claims use the open transition phrase “comprising,” which I understand is synonymous with “including,” and that the claimed “energy storing component” is therefore not necessarily limited to only the components recited within the claim. Furthermore, the claims require a clear identification of what constitutes the “energy storing component” because they require delineation between one “energy storing component” and a “further energy storing component.” Since a POSA would find no definite identification or

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disclosure within the intrinsic record of what connotes an “energy storing component,” in my opinion, this term is indefinite.

148. Unicorn’s proposed construction—“device that stores energy”—further demonstrates the indefiniteness of the phrase “energy storing component.” Certain of Tesla’s accused products comprise multiple battery packs that include multiple battery pods that, in turn, include multiple battery modules, each of which could arbitrarily be chosen as an energy storing component. *See, e.g.*, Plaintiff’s Disclosure of Asserted Claims and Infringement Contentions (Ex. O at 8-13); UNICORN_00002958 (Ex. EE). A POSA would not know whether, e.g., an individual pack, individual pods, or individual modules are energy storing components. A POSA would not know where to draw the line to distinguish between what is an energy storage component, what is an energy store, what is a supply network component, and what is a supply network, as recited in claim 27.

149. In this regard, the file history itself confuses and conflates the terms “energy storing component” and “energy store” in a way that makes the claim language almost indecipherable to a POSA. In distinguishing the prior art, the applicant wrote:

As such, WO 837 teaches that each of the battery modules (200) comprises a plurality of unit cells (210), and a circuit board at its front and rear, termed ‘front connector’ and ‘rear connector.’ See WO 837, FIG. 8. The presence of the ‘front connector’ acting as a communication connector to said external circuit makes it clear that the controlling circuit is not an element of the ‘**energy store**’ itself. At a minimum, there is no suggestion whatsoever that any ‘switch for separating the **energy store** from the network medium’ is provided capable of ‘separating’ the **energy store** from the network medium ‘in response to an autonomous identification of incompatibility of the **energy storing component** with the present supply network,’ as recited by claim 1.

Amendment Submitted with Request for Continued Examination of 3/5/2018 (Ex. U at 11). As recited in claims 1 and 27, a switch is provided for “separating the **energy store** from the network medium,” but the claim also recites that “the **energy storing component** is separated from the

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network medium in response to an autonomous identification of incompatibility of the energy storing component with the present supply network.” However, the above excerpt of the file history states that it is the energy store, not the energy storing component, that is separated from the network medium in response to an autonomous identification of incompatibility of the energy storing component with the present supply network. The applicant again confused the terms in this excerpt from the file history:

For at least these reasons, Applicant respectfully submits that WO 873 lacks any teaching or suggestion of a controlling circuit on the **energy storing component** itself, much less a “switch for separating the **energy store** from the network medium” that is “configured to cooperate with the communication interface such that the **energy storing component** is separated from the network medium in response to an autonomous identification of incompatibility of the **energy storing component** with the present supply network.” Therefore, WO 837 cannot possibly teach or suggest an “autonomous” control of each energy storing component regarding its compatibility.

(*Id.* at 12). Again, it is unclear from this excerpt in the file history whether the claimed “switch” is intended to separate the “energy store,” the “energy storing component,” or both from the network medium. Given that the applicant itself could not figure out what the difference is between an energy storing component and an energy store, a POSA certainly would not be able to either.

150. The parties’ definitions of “component” confirm that “energy storing component” has no understood meaning in the art. *See* Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “component” (Ex. E at 131) (“1. A constituent part, especially of an organized whole or system.”); McGraw-Hill Dictionary of Electrical and Computer Engineering, 2004, definition of “component” (Ex. T at 106) (“Any electric device, such as a coil, resistor, capacitor, generator, line, or electron tube, having distinct electrical characteristics and having terminals at which it may be connected to other components to form a circuit.”); Newton’s

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Telecom Dictionary, 26th Edition, 2011, definition of “component” (Ex. F at 310) (“An element of equipment which unto itself does not form a system.”); UNICORN_00003229 at UNICORN_00003234 (Ex. J) (“a part of an object, system or piece of equipment”); UNICORN_00003256 at UNICORN_00003259 (Ex. W) (“Any electric device, such as a coil, resistor, capacitor, generator, line, or electron tube, having distinct electrical characteristics and having terminals at which it may be connected to other components to form a circuit. . . . A constituent part of a system”). As shown in these definitions, the word “component” can be understood to be any device, piece of equipment, or part of an object or system.

H. “energy store”

151. I understand that Tesla has argued that this term is indefinite because it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. I agree with Tesla that a POSA would not understand this term with reasonable certainty in view of the fact the term has no recognized meaning in the art and in view of the term’s ambiguous use in the patent and the file history, for the reasons above with respect to the “energy storing component” and the reasons below with respect to the “supply network component.”

152. The term “energy store,” like “energy storing component” and “supply network component,” is a coined term. The specification ambiguously and repeatedly conflates “energy store” with “supply network component” in a manner that demonstrates the indefiniteness of the terms, which are both individually and separately recited in claim 27. (*See, e.g.*, ’869 patent at 1:18-20 (“**the supply network component can in this case be an energy store**”); ’869 patent at 5:63-64 (“[t]he **supply network component as energy store** is arbitrarily interchangeable between different applications”); ’869 patent at 8:55-57 (“Each **supply network component designed as an energy store** will only supply energy if a release is given via the communication interface.”); ’869 patent at 11:33-35 (“The two contact units of **the supply network component**

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designed as an energy store are connected to busbars within the housing, which simultaneously perform supporting functions.”.) The specification itself therefore renders the term “energy store” indistinguishable from “supply network component,” such that there is no meaningful way for a POSA to determine a definite and distinct meaning for the terms.

153. Unicorn’s proposed construction—“unit that stores energy, such as a rechargeable battery”—only confirms that this phrase is meaningless, since it does not delineate any meaningful distinction between the “energy store,” the “energy storing component,” or the “supply network component.” The only distinction between Unicorn’s constructions for “energy store” and “energy storing component” is the use of the word “unit” for energy store instead of “device” for energy storing component. But these words are indefinite themselves and do not resolve the indefiniteness issues, since a “device” can be a “unit” and a “unit” can be a “device.” Unicorn’s proposed construction of “energy store” as a “unit that stores energy, such as a rechargeable battery” is therefore indistinguishable from Unicorn’s constructions of “energy storing component” as a “device that stores energy” and “supply network component” as an “energy storing component for a supply network.”

154. The indefiniteness of Unicorn’s proposed construction of “energy store” is further demonstrated by the specification in that Unicorn’s proposed construction does not account for the full scope of the specification’s description of the “supply network component” as also being synonymous with an “intelligent standard energy store as a component of an intelligent electricity network.” (’869 patent at 5:17-25 (“In this way, it becomes possible to provide, **as supply network component, a mobile, stackable, secure and intelligent standard energy store as a component of an intelligent electricity network** or energy mesh in which the energy consumers, the energy sources and **the energy stores as supply network components** according to the

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invention can communicate via suitable interfaces and protocols and the current flow and data flow between the supply network components can be routed unambiguously.”). There is no indication in the specification as to the structures that constitute the “intelligent” aspects of the “energy store.” Unicorn’s proposed construction of “unit that stores energy, such as a rechargeable battery” does nothing to identify what structure or structures constitutes such “intelligent” aspects of the energy store beyond merely the exemplary “rechargeable battery” in a manner that would delineate to a POSA a definite scope of the structures that are the “energy store.” Additionally, Unicorn’s construction not only fails to differentiate between the “energy store” and the “energy storing component” or “supply network component,” but it also fails to provide a definite distinction with other expressly recited claim elements, such as the indefinite “gateway” discussed above, which must be distinct and separate from the “energy store.”

155. Unicorn cites two irrelevant definitions of “store” that relate to the recording and preservation of **data** (not energy). UNICORN_00003256 at UNICORN_00003267 (Ex. W). These definitions do nothing to provide any meaning to the coined phrase “energy store” in view of the indefinite description of the term within the patent specification itself.

I. “supply network”

156. I understand that Tesla has argued that this term is indefinite because it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. I agree with Tesla that a POSA would not understand this term with reasonable certainty in view of the patent and the file history. The term “supply network” has no commonly understood meaning in the art. The specification states: “the supply network component can in this case be an energy store, an energy converter, or an energy source or else an energy consumer.” (’869 patent at 1:18-20.) Thus, contrary to the plain and ordinary meaning of “supply,” which would imply that the purpose of the claimed “supply network” is to provide energy to something else, the

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“supply network” recited in the patent appears to comprise components that store, convert, source, or consume energy. Unicorn’s dictionary definitions for “supply,” which track the plain and ordinary meaning of the term, are therefore irrelevant. *See* UNICORN_00003229 at UNICORN_00003250 (Ex. J). Thus, a POSA would not know what purpose the word “supply” serves in the phrase “supply network,” if it serves any purpose at all.

157. I understand that, if this term is not held to be indefinite, Tesla has proposed to construe “supply network” as a “distributed network of physically contacting energy storing components.” I also understand that Unicorn has proposed to construe the term as a “scalable collection of interconnected electrical devices for supplying consumers with electrical energy.” In my opinion, and in view of the ’869 patent and its file history, to the extent this term is not indefinite, a POSA would understand this term to refer to a distributed network. Because the phrase “supply network” has no meaning in the art, a POSA would have looked to the patent and its file history to define the term and would have found that the specification discloses and claims a distributed network. The patent differentiates its invention from prior art systems that used a “centrally controlled energy supply,” noting that such “present-day large multi-cell battery systems exhibit a number of fundamental problems.” (’869 patent at 3:29-30, 3:35-36.) A distributed network is distinguishable from a centralized network in the sense that there is no centralized controller that manages the component parts of the network. *See* Wiley Electrical and Electronics Engineering Dictionary, 2004, definition of “distributed network” (Ex. E) (“A communications network in which resources, such as processors and switching equipment, are distributed throughout multiple locations, as opposed to one A computer network in which functions such as processing and storage are handled by multiple nodes, as opposed to a single computer.”).

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158. I understand that Mr. Dillard, Unicorn’s expert, has presented new testimony that apparently misunderstands the meaning of “distributed network” in the art. Mr. Dillard states, in paragraph 69 of his declaration, which was filed with the court with Unicorn’s opening claim construction brief, that “a POSITA would not understand the reference Dr. Ehsani cites regarding an aggregation of ‘independent’ components to suggest the resulting network is a ‘distributed network.’ The reference to ‘independent’ would seem to refer to the ability of the energy storing components to be added/removed from the network or to act independently (see discussion of ‘autonomous . . .’ below), not some aspect of their physical location.” The word “distributed” in “distributed network,” as that term is understood in the art, has nothing to do with the physical location of the network components. Instead, it refers to the distributed nature of control over the overall network: there is no centralized controller that dictates how the various network components should behave. Instead, control is *distributed* among the component nodes of the network. This is the case in the claimed “supply network” of the ’869 patent.

159. The claims of the ’869 patent make it clear that the “network” referenced in these terms is a distributed network. This is evidenced by the fact that all energy storing components are required to autonomously determine whether to connect themselves to the network medium. The only reason to include such functionality would be to create a distributed network of energy storing components that may communicate with each other and implement self-regulation with respect to joining and leaving the distributed network of energy storing components. And the presence of such functionality effectively precludes the presence of a centralized controller, which would have no control over the system’s constituent components, given their autonomy. For example, such a centralized controller would not be aware of which components had joined the

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network if the components could join autonomously, as in the '869 patent, and would not be able to control which components connect to the network.

160. The specification also makes it clear that the energy storing components are part of a distributed supply network. (*See* '869 patent at 6:2-5 (“The individual energy stores are permitted to be distributed, and can be distributed, arbitrarily in the application and form a shared intelligent electricity network.”).) The fact that the communication interface is implemented as an RFID transponder is further evidence that the claimed “network” is a “distributed network.” (*See id.* at 10:32-44.)

161. The file history further demonstrates that the network is a distributed network. *See* Amendment Submitted with Request for Continued Examination of 3/5/2018 (Ex. U at 9) (“Applicant notes that the subject matter of the arrangement of claim 1 is now specifically concerned with storage components for electrical energy, where **a scalable supply network may be formed allowing aggregation of several independent energy storage components in an easy and safe manner.**”). An “independent” energy storing component would not be controlled by a centralized controller. Therefore, a POSA would not understand an energy storing component having a centralized controller to fall within the scope of the claims.

162. I understand that Unicorn has submitted dictionary definitions for “network” and “electrical network.” UNICORN_00003226 at UNICORN_00003228 (Ex. FF) (“a collection of interconnected electrical devices”); UNICORN_00003229 at UNICORN_00003249 (Ex. J) (“a complex interconnected group or system of people or things . . . a system of lines or channels which cross each other . . . a system made up of a number of points or circuits that are interconnected”). In my opinion, these definitions do not capture the type of network that is claimed and described in the patent and its file history, which is a distributed network. In addition,

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Unicorn’s proposed construction for “supply network”—“scalable collection of interconnected electrical devices for supplying consumers with electrical energy”—does not accurately capture the distributed network concept recited in the claims and described in the patent and its file history. Moreover, the “supply network” is never described as exclusively “supplying consumers with electrical energy.” For example, as noted above, the supply network may also store or convert electrical energy. Thus, a POSA would not understand the term “supply network” to be limited to a network that “suppl[ies] consumers.” In addition, I do not see any language in the specification or file history that expressly limits the claimed “supply network” to being a “scalable collection” of devices.

163. I further note that a POSA would have understood that the term “supply network component” referred to either “an energy store, an energy converter or energy source or else an energy consumer,” i.e., a component having any one or more of the functions of storing, converting, sourcing, or consuming electrical energy. (’869 patent at 1:18-20.) Unicorn asserts that the term “energy storing component” is **only** an “energy store” and “has the function of storing energy.” (Open. Br. at 7.) Unicorn’s statement that the asserted claims “of the ’869 patent relate to an energy storing component (ESC) for **supplying** consumers with electrical energy” therefore appears to be incorrect in view of the fact that an “energy storing component” only “has the function of **storing** energy”—in other words, it only serves as an “energy store,” not an “energy source” to consumers. (Open. Br. at 1.) This is further demonstrated by the specification’s purposeful distinction between a “supply network component as energy store” and “**other** supply network components in the form of energy sources.” (’869 at 1:21-22.) Furthermore, the specification describes “[r]echargeable batteries as **energy stores and as energy sources** in voltage networks.” (’869 at 1:21-22.) A POSA would therefore recognize that, when a

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rechargeable battery is an “energy store,” it **receives** electrical energy and, when the battery is an “energy source,” it **supplies** electrical energy to another device. This is yet another reason why a POSA would find the terms “energy storing component,” “supply network component,” and “energy store” to be indefinite: an “energy storing component” cannot simultaneously be limited to being **only** an “energy store,” as argued by Unicorn, while also serving as an “energy source,” as suggested by Unicorn’s description of the energy storing component “**supplying** consumers with electrical energy.”

J. “network medium”

164. I understand that Tesla has proposed to construe this term as “electrical energy in a distributed network” and that Unicorn has proposed to construe this term as “electrical energy in the supply network.” First, I agree with the parties that the “medium” recited in this term is “electrical energy.” Second, as explained above in connection with the “supply network” term, I agree with Tesla that “supply network” is indefinite. However, to the extent that “supply network” is not indefinite, I agree with Tesla that a POSA would understand “supply network” to mean a “distributed network of physically contacting energy storing components,” for the reasons discussed above in connection with the “supply network” term. Thus, the “network medium” should be construed to mean “electrical energy in a distributed network,” i.e., the “distributed network of physically contacting energy storing components.”

K. “configured to cooperate with the communication interface”

165. I understand that Tesla has argued that this term is indefinite because it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. I agree with Tesla that a POSA would not understand this term with reasonable certainty in view of the patent and the file history. The specification does not disclose how any energy storing component, supply network component, or any other type of “component” may “cooperate” with

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a communication interface. The communication interface is a component part of the energy storing component, as recited in the claims, therefore it makes no sense to state that the energy storing component “cooperate[s]” with “the communication interface” that is itself part of the energy storing component. The file history likewise provides no meaningful guidance on what it means for the energy storing component to “cooperate with the communication interface.” A POSA would simply be confused about what it means to “cooperate with the communication interface.” For example, a POSA would not know from the claim language whether the “communication interface” referenced in this claim limitation refers to a communication interface of some *other* energy storing component or the communication interface contained in the energy storing component itself.

166. Alternatively, if this term is not held to be indefinite, I understand that Tesla has proposed to construe the term to mean “configured to work together with the communication interface.” In my opinion, to the extent a POSA could understand this term, a POSA would interpret it to mean “configured to work together with the communication interface.” This definition comports with the plain and ordinary meaning of the word “cooperate.” *See* Merriam-Webster Online Dictionary, definition of “cooperate” (Ex. GG) (<https://www.merriam-webster.com/dictionary/cooperate> (last visited May 10, 2021)) (“1: to act or work with another or others : act together or in compliance. 2: to associate with another or others for mutual benefit.”).

L. “autonomous identification of incompatibility” / “autonomous identification of compatibility”

167. I understand that Tesla has argued that these terms are indefinite because they fail to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. I agree with Tesla that a POSA would not understand these terms with reasonable certainty in view of the patent and the file history. As one dictionary definition puts it, “compatibility” and

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incompatibility are “widely misused and especially vague word[s].” Newton’s Telecom Dictionary, 26th Edition, 2011, definition of “compatibility” (Ex. F at 320) (“A widely misused and especially vague word, ‘compatible’ has several meanings.”). The specification refers to “compatibility” in the following excerpt: “after authentication, identification of compatibility and compliance with the physical limits, each supply network component is individually turned on or off.” (’869 patent at 8:57-60.) In this excerpt, “identification of compatibility” is listed along with “authentication” and “compliance with the physical limits.” Thus, the “identification of compatibility” must involve something other than “authentication” and “compliance with the physical limits.” But the ’869 patent does not disclose what that “other” something is.

168. The specification merely states that “compatibility” may be “monitor[ed],” (*id.* at 8:61-64) and that the auxiliary voltage interface may be used to supply electrical components that can ensure “compatibility,” (*id.* at 14:12-22). However, the specification does not otherwise define what “compatibility” means. Given that the plain and ordinary meaning of the term “compatibility,” as reflected in the Newton’s Telecom Dictionary definition above, is “vague,” a POSA would not know what type of “compatibility” identification practices the patent. The patent’s file history likewise does not shed any light on the meaning of “compatibility.” (*See Applicant Arguments/Remands Made in Amendment of 3/5/2018* (Ex. U at 9-13).)

169. I understand that, if these terms are not determined to be indefinite, Tesla has proposed to construe these terms as “an identification, by the energy storing component, of [incompatibility/compatibility] with the supply network.” I understand that Unicorn has proposed to construe the term “autonomous identification of compatibility” as “the energy storing component monitoring communications with one or more other devices on the supply network and physical parameters of the supply network to self-determine, using at least information derived

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from such communications, whether to connect itself to the network medium” and the term “autonomous identification of incompatibility” as “the energy storing component monitoring communications with one or more other devices on the supply network and physical parameters of the supply network to self-determine, using at least information derived from such communications, whether to separate from the network medium.”

170. In my opinion, if these terms are not held to be indefinite, a POSA would understand them to take on the meanings in Tesla’s proposed constructions, which reflect the plain and ordinary meanings of these terms. In my opinion, Unicorn’s constructions graft additional limitations into the claims that are not directly implicated by the terms. For example, the terms say nothing about “monitoring communications with one or more other devices on the supply network and physical parameters of the supply network.” In addition, these terms say nothing about determining whether to connect to the network medium. To the extent these additional concepts appear in the claims, they appear in terms that a POSA would construe separately from these terms. In my opinion, a POSA would not view anything in the patent or its file history as disclaiming claim scope such that these terms should be limited in meaning according to Unicorn’s proposed constructions.

M. “functional group”

171. I understand that Tesla has argued that this term is indefinite because it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. I agree with Tesla that a POSA would not understand this term with reasonable certainty in view of the patent and the file history. This term appears in claim 9, which refers to “the energy storing component compris[ing] at least one sensor for detecting a physical parameter of **the** functional group.” Although the claim uses the word “the” to refer to the “functional group,” the functional

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group was never previously introduced in claim 9 or claim 1, from which claim 9 depends. Thus, a POSA would not understand which “functional group” claim 9 is referring to.

172. The specification explains that a functional group can include “at least one direct current converter” and can comprise a plurality of energy stores, “wherein a respective direct current converter is assigned to each energy store.” (’869 patent at 8:1-3, 8:38-42.) Thus, the specification differentiates between functional groups, which contain multiple energy stores and DC converters, and the individual energy stores contained therein. Unicorn’s proposed construction of “energy store” for the term “functional group” is therefore nonsensical. In view of the specification’s disclosure, and the fact that there is no prior reference to “the functional group” in the claims, a POSA would not understand the scope of claim 9 and its dependent claim 10 with reasonable certainty. Moreover, Figure 9 of the patent depicts a functional group (“16”) that includes an energy store but is not an energy store itself. Therefore, a POSA would not understand a functional group to solely refer to an “energy store.” In addition, if a “functional group” is an “energy store,” as proposed by Unicorn, and if an “energy store” is a “unit that stores energy,” a POSA would have no idea what “unit” is referred to in, for example, Figure 9, which displays an exemplary functional group. For example, a POSA would not know whether all of what is labeled “16” is a functional group, only some parts of “16,” or only the “battery” in the figure.

N. “supply network component”

173. I understand that Tesla has argued that this term is indefinite because it fails to inform those skilled in the art about the scope of the claimed invention with reasonable certainty. I agree with Tesla that a POSA would not understand this term with reasonable certainty in view of the patent and the file history. This term appears in claim 27, which refers to “each supply network component” and “wherein the plurality of supply network components are connected in parallel or in series with one another” without first introducing what a supply network component

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is or how it is different from the recited energy storing components. As I discussed above in connection with the “energy storing component” term, the applicant amended the claims of the ’869 patent to replace references to “supply network component” with references to “energy storing component.” No explanation appears in the specification or file history regarding what the difference might be between a supply network component and an energy storing component. For example, a POSA might infer from the term “supply network component” that it must **supply** electrical energy, whereas an “energy storing component” need only **store** electrical energy. The two phrases are at odds, and a POSA would not know whether the recited supply network component needs to **supply** electrical energy to other component(s), **store** electrical energy, or both.

174. In any event, Unicorn’s proposed definition of “energy storing component for a supply network” for this term makes no sense, because the applicant clearly intended to differentiate from an energy storing component and a supply network component, as shown in the file history discussed above. Unicorn’s definition completely ignores the word “supply,” which a POSA would have no motivation to do in view of the apparently intentional distinction between a supply network component and an energy storing component, as evidenced by the fact that claim 27 recites an “energy storage block for a supply network,” unlike claim 1, which “energy storage block” may contain supply network components (however they were intended to be defined), in addition to energy storing components. The specification also ambiguously and repeatedly conflates “supply network component” with “energy store” in a manner that further demonstrates the indefiniteness of the terms, which are both individually and separately recited in claim 27. (*See, e.g.*, ’869 patent at 1:18-20 (“**the supply network component can in this case be an energy store**”); ’869 patent at 5:63-64 (“**[t]he supply network component as energy store** is arbitrarily

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interchangeable between different applications”); ’869 patent at 8:55-57 (“Each **supply network component designed as an energy store** will only supply energy if a release is given via the communication interface.”); ’869 patent at 11:33-35 (“The two contact units of **the supply network component designed as an energy store** are connected to busbars within the housing, which simultaneously perform supporting functions.”).) Thus, for the additional reasons discussed above in connection with the “energy storing component” and “energy store” terms, the term “supply network component” is indefinite. Moreover, a POSA might understand claim 27’s statement that “the plurality of supply network components are connected in parallel or in series with one another” to refer to *all* of the supply network components in the claimed supply network, in addition to the claimed energy storing components. Under this interpretation, a POSA would not understand the referenced “supply network components” to be the same as the claimed “energy storing components.” In any event, it is unclear from the intrinsic record how the patentee intended to construe “supply network component.”

175. I declare under penalty of perjury, under the laws of the United States of America, that all statements made herein of my own knowledge are true. I am willing to testify under oath in support of this declaration.

Declaration of Mark Ehsani, Ph.D.

Executed at College Station, Texas

Dated: July 30, 2021

A handwritten signature in black ink, appearing to read 'Mark Ehsani', written in a cursive style.

Mark Ehsani, Ph.D., P.E.